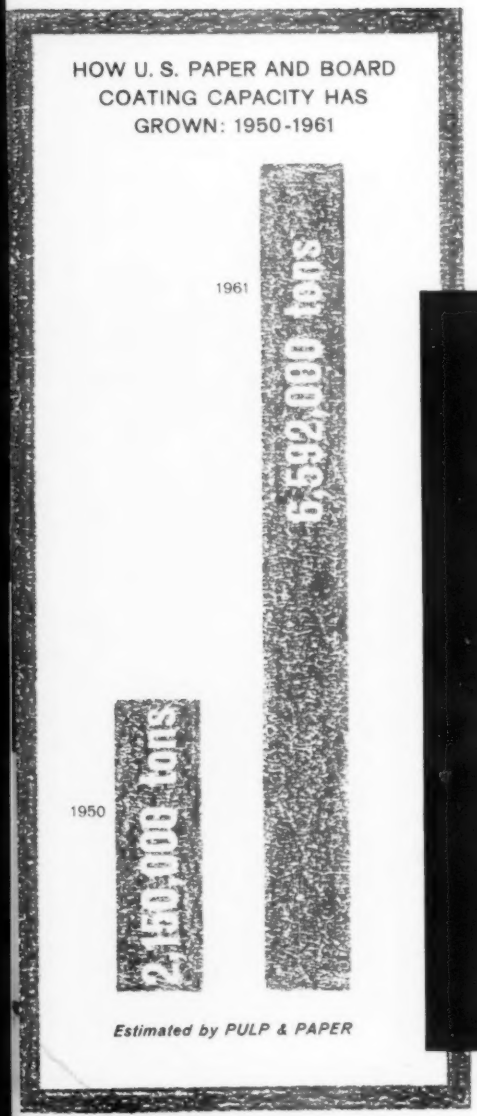
PULP & PAPER

May 29, 1961



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ONLY EMERSON WEDGELESS PLUGS CAN PASS THIS TEST

- because only Emerson Plugs have these design advantages!

Before You Buy Another Jordan Plug Check the Answers to these Questions

Question	Emerson Wedgeless Plugs	Other Plugs
Are plugs available in stainless steel?	YES	NO
Are plugs easy to strip and fill because of bandless construction and only one knife to a slot?	YES	NO
Can a full range of knives — both single and duplex — be used interchangeably in the same plug?	YES	NO
Does the design provide impact cushions between the base of the knives and the bottom of the slots?	YES	NO
Is there ¾" of wear depth available on all knives for long periods of Jordaning?	YES	NO
Can used plugs be jacketed with stainless steel?	YES	NO
Do bars have the advantage of Microlyzing based upon 40 years experience in custom heat treating?	YES	NO

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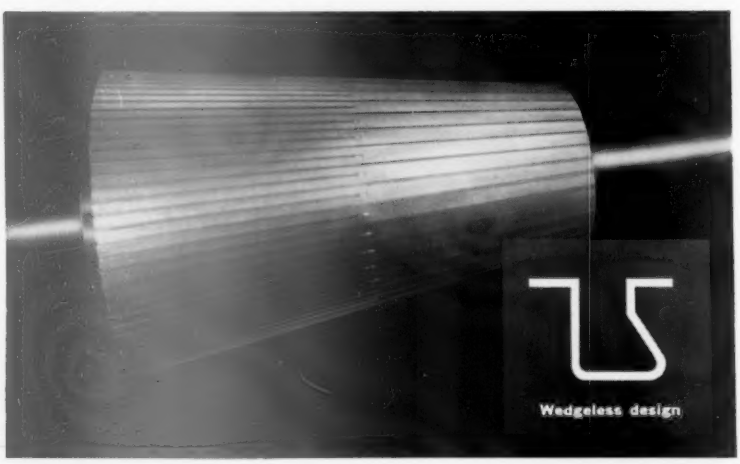

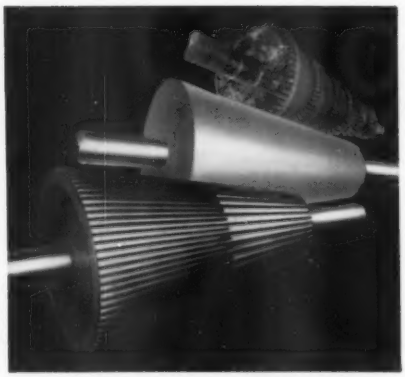

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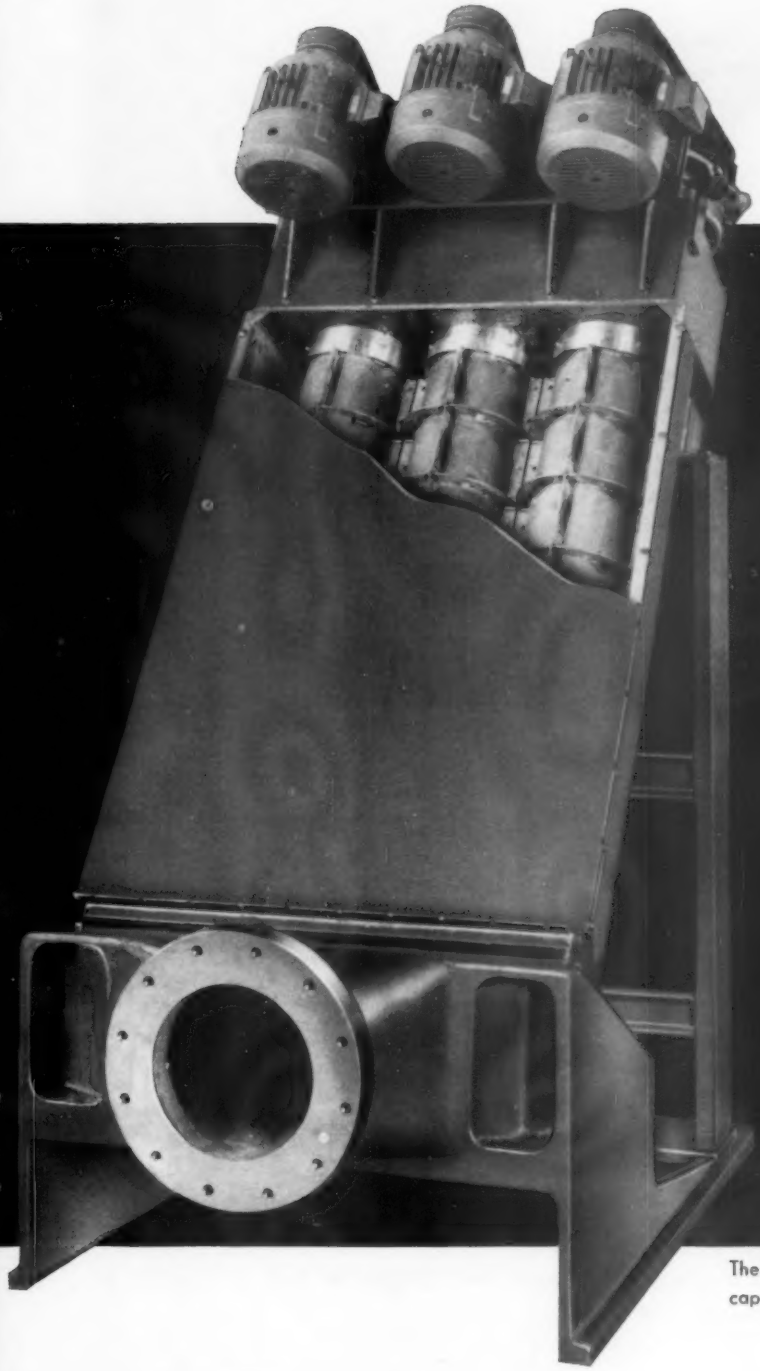

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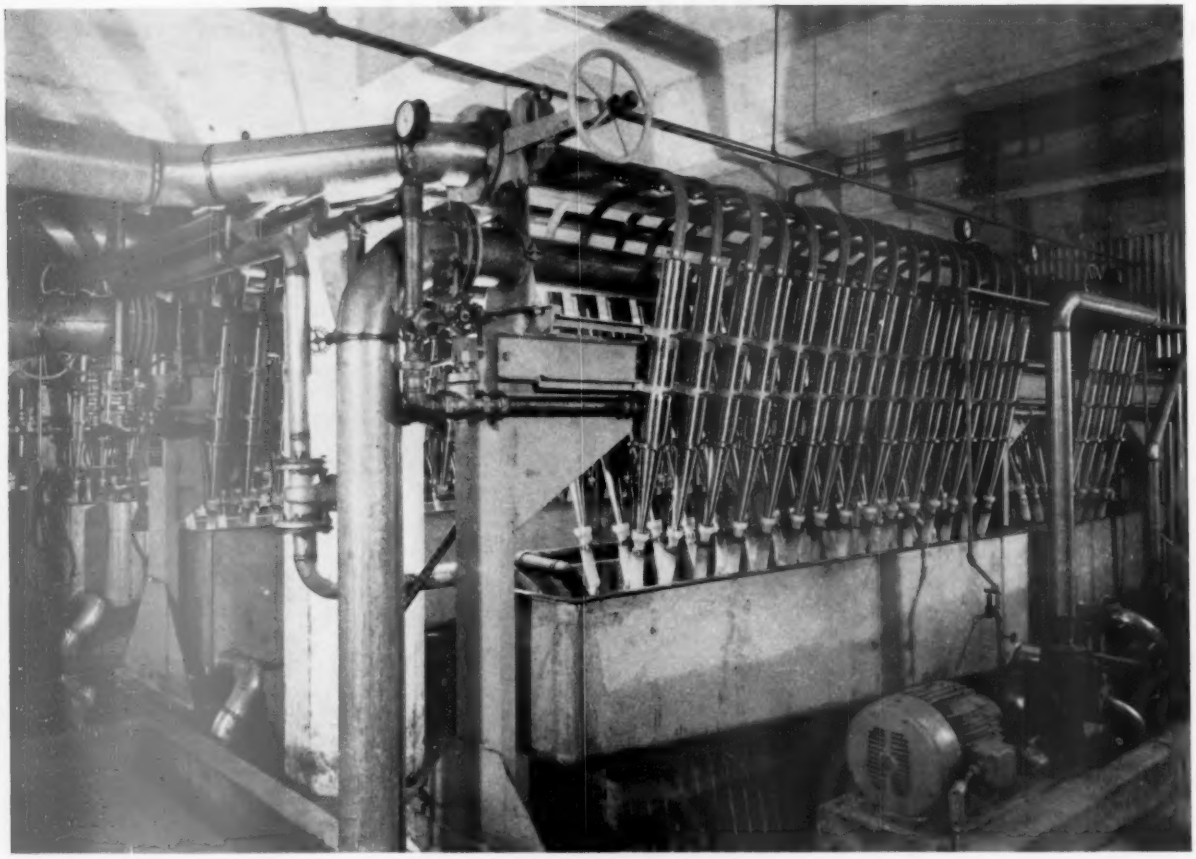

BIRD CYCLEAN *Users Report*

Unexpected and Substantial FRINGE BENEFITS

The primary purpose of every Bird Cyclean installation is to improve and maintain quality. Drastic reduction in shive count and/or dirt count are expected and achieved.

But reports of added operating improvements almost invariably follow:

- **marked reduction in breaks**
- **sharp decrease in washup time**
- **notable increase in wire life**
- **faster paper machine speed**
- **gratifying improvement in fibre hydration**
- **unexpected savings in raw material cost due to ability to use material formerly discarded**

Cycleans come in three sizes — 4" dia., 36 gpm inlet capacity; 7" dia., 120 gpm; 12" dia., 500 or 850 gpm. Ask for recommendations and estimates.

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PULP & PAPER

NEWS DIGEST...

Canadian pulp is going to Cuba
even though the Dominion's pulp manufacturers may not like Fidel Castro's politics. First full cargo of British Columbia freight recently loaded for Cuba included 9,000 tons of Port Alberni and Harmac kraft and Prince Rupert sulfite. Crofton kraft is to be shipped later. Canadian trade has sharply declined with Cuba, but there are no restrictions. Under U.S. law, pulp is not regarded as strategic material. Although U.S. has embargo on Cuban trade, U.S. sells twice as much to Cuba as does Canada, according to Canadian ministry of trade.

Option on nuclear process steam plant
is offered to an American pulp and paper company. Atomic Energy Commission does not specify any industry, but PULP & PAPER learns reliably that pulp and paper is regarded as most suitable beneficiary. Most mills are far from population centers and some, in Lake States and East, pay high for fuel. Mill would buy BTUs for fixed price for 5 to 10 years, then have option to buy pressurized water reactor for heavily depreciated price. AEC desires expressions of interest from any pulp and paper company.

Slight pickup in operations of paper
and paperboard is seen as industry approaches midpoint at about 91% capacity. One million paperbacks a day and one billion books were sold in 1960, says Andrew G. Sharp, senior vice pres., Kimberly-Clark Corp., at 12th TAPPI Coating Conference.

World purchases of paper pulp up 17%
since 1956, according to Assn. of Pulp Consumers. United Kingdom is up 27%; West Germany, 52%; France, 15%; Italy, 69; Netherlands, 107%; Canada, 14%. U.S. purchases dropped 7%.

Wisconsin mills resisted payroll cuts
and made large capital outlays in vigorous effort to retain markets, states M. J. Schulenburg, Kimberly-Clark, chairman of unique Wisconsin Paper Industry Information Service. He turned over chairmanship to Samuel A. Casey, Nekoosa-Edwards. Six mills in past year have installed or ordered new machines—Kimberly-Clark at Niagara, Nekoosa-Edwards at Nekoosa, Wausau at Brokaw, Nicolet at DePere, Consolidated at Whiting, Charmin at Green Bay. Albert W. Wilson, editor of PULP & PAPER, told same meeting of experiences in Russia and European paper trends.

Wisconsin private growers planted 6 times
as many trees in 1960 as in 1944, reported another Badger state industry-sponsored organization, Trees for Tomorrow Inc. E. B. Hurst of Consolidated was elected president, Norman S. Stone of Mosinee, secretary-treasurer. They succeed Folke Becker, St. Regis, and Dave Smith, Wausau Mills, respectively. Latter held offices for nearly 20 years.

...COATING CONFERENCE

These Are Trends Developing...

more synthetic adhesives, lighter coats, gloss calendering

By MAURICE R. CASTAGNE, Associate Editor

BUFFALO, N.Y.—If the coating industry learned one lesson here at TAPPI's 12th Coating Conference, it was this. It doesn't matter what kind of a coater you use—if your base stock is not good, you can't cover it up with coating.

This wasn't the only lesson. Attendance showed that coating is definitely in the big leagues to stay. For the second year, registration topped 900 (918 compared to 956 in 1960). This high attendance, coming when the industry is belt-tightening, was a strong indication of how the industry feels about coating.

Some 26 overseas representatives from 7 countries attended the conference, with speakers from West Germany, Holland and England taking part.

One strong undercurrent
at the 12th Coating Conference: Gloss calendering. "Everyone's talking about it, but nobody will say anything," complained one mill man. He was referring to the present impasse until certain patents are ironed out. There are now five different systems under consideration.

Belt carries 3½ million pounds of wet pine chips a day

"Riffle Grip" belt takes chips up incline, does it fast

THAT belt carries wet pine chips from an elevator belt to storage silos in an Arkansas paper mill. But, several years ago, when the capacity of the chipper was increased by 20%, the smooth belt being used couldn't carry chips away fast enough. They'd slip back on the belt, pile up at the unloading area, tumble back down the elevator shaft.

The plant superintendent took his problem to a B.F.Goodrich distributor, who recommended the BFG "Riffle Grip" conveyor belt. The belt is made with a series of extra-tough rubber ridges molded into the cover. The tread that these ridges form holds the chips in place on the belt, takes them up the incline, doesn't let them slip back.

The B.F.Goodrich belt completely solved the problem, permits higher belt speed, and a 20% increase in production. It's been in use over three years now, handling 3½ million pounds of chips in an average day.

B.F.Goodrich distributors have exact specifications for the B.F.Goodrich conveyor belt described here. And, as factory-trained specialists in rubber products, they can answer your questions about the many products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Company, Dept. M-999, Akron 18, Ohio.*

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CONVEYOR BELTS

scored the meetings like "hentracks" from a faulty roll coater. Here are some:

• **Problems with blade coaters** trace back to poor papermaking, advised one mill man. "I've talked to everyone who complains about blade coaters," he said, "and about 80% of their troubles are the base stock. I know. Once we solved our wet end problems, we were O.K."

M. Judt, Feldmühle Papier- und Zellstoffwerke, West Germany, told the conference that the paper machinetender has more control over quality of the coated sheet than the coater operator. Probably the problem was best expressed by TAPPI's President Harold M. Annis, vice president, research and development, Oxford Paper Co: "No one has any business getting into high speed coating (or any kind of coating for that matter) without first getting the wet end of his paper machine in order."

Other comments on this subject: The coated sheet can't be any better than the raw stock. Some Southern board mills believed that coating would cover up poor formation, lumps, etc., actually, it emphasizes any defects in the base sheet.

• **Coated offset papers** may be next big binge for Southern bleached board mills. One Southern mill is now producing 40, 50 and 60 lb. coated offset grades. One comment: If the Southern mills on bleached kraft go into refining, they could make a bleached sheet for offset with heavy size press coating that could compete with Northern offset at about 2/3 price.

• **Two Canadian board mills are** adding coating this year. One mill will use a Champion rod coater and a roll coater, on the machine.

• **New off-machine blade coater** is starting up at Newton Falls Paper Mill, Inc. The Flexiblade coater is designed for single or double coating, one or two sides, and is followed by an air knife. High velocity air dryers will be used on the unit which trims about 112 in.

• **Lighter weights in publication** grades are coming—32 to 30 lb. Pleads one mill man: "Don't go so low so fast."

• **Switch to coated magazine** stock is reported in offing for one major consumer publication which has been a holdout on this grade. It probably will go to off-machine blade coating.

• **Most challenging area** is in school books, says Andrew G. Sharp, senior vice president, industrial products, Kimberly-Clark Corp., who spoke at the luncheon. "It's going to be a big market," he challenged. One idea: Low cost, disposable books that children could use all year and throw away at term's end. "The whole method of teaching and learning is being scrutinized," he stated and then asked, "What part will paper play in these new methods and techniques? If we don't meet that need, some other industry will."

• **Adhesives was the Coating** Conference theme. Richard T. Trelfa, vice president, Perkins-Goodwin, moderated a panel on this subject. Speaking for enamel papers, Dr. Frederick Frost, research director, S. D. Warren Co., said, "The most compelling urge in the future will be to reduce the weight of coated paper without reducing bulk or other characteristics. Even if the effect of such demands on manufacturing costs are not considered, this is a large order. There's going to be a great deal of imagination turned loose on this problem."

Adhesives of the future, said Dr. Frost, will be "carpentered" molecular structures. He predicts some "weird and wonderful developments—one or two which will revolutionize our concepts in the next 10 years."

• **Best adhesive for publication** papers that measures up to three major concepts of operability, economy and printability, is starch, said Frank Kaulakis, chief, coating development, Consolidated Water Power & Paper Co. Starch, he said, is a highly adaptable raw material which can be modified either by the starch manufacturer or in the coating plant by enzymes.

Viscosity and solids can be varied over a wide range. Level can be varied 20 to 25% for gloss ink holdout. Coat weights generally applied (publication grades) vary from 5 to 7 lbs./side and in the future will be 3 lbs. or lower per side, he predicted. This will require adhesives with superior holding properties, said Mr. Kaulakis.

• **Adhesives for board coating** were defined by Joseph T. Loomer, manager of bleached board technical development, Continental Can Co. Machine coating of board is a relatively new field, he explained, and estimated that in 1960 about 300,000 tons of coated cylinder board and some 600,000 tons of coated bleached board were produced. The entire board field, stated Mr. Loomer, is just starting to awaken to economic aspects of board coating: Board is cheaper than pulp.

Coaters were installed on cylinder machines to get the same results on cartons as in magazines: Better printing surface. Some manufacturers believed, said Mr. Loomer, that coating would cover defects in the base sheet, but you can't cover up lumps, etc., he stated. The upcharge for coating never covered costs; coating on the cylinder machine was a one-way street.

With the Fourdrinier and the secondary inlet, "the South rose again," said Mr. Loomer. The cylinder machine can't compete with the Fourdrinier and formation is one reason why, he stated. Sheeting directly on the cylinder machine is difficult, off-machine is expensive. Mr. Loomer suggested keeping specialties off the machine and "bread and butter" grades on the machine.

Adhesive requirements for cylinder board grades, he said, are high binding strength, good color, opacity, easy insolubilization, preferably to give insolubilization on the alkaline side. Viscosity should be capable of drastic modification.

With the Fourdrinier, we have new machines and the best of everything—everything but printability. It took a long time for Fourdrinier bleach board to appreciate hardwoods, said Mr. Loomer. To add insult to injury, he stated, the coating was given away.

The Fourdrinier usually applies more coating than the cylinder.

Low coat weights are required for board and there should be little or no shrinkage (from the adhesive). Keep coating where it belongs—on the surface of the sheet, pleaded Mr. Loomer. Permit board producers to use one formulation for all grades. Take size press coatings out. Eliminate the pigment or put the pigment back into the sheet, he said.

• **Future adhesive developments** were commented on by W. P. Taylor, now manager of research, timber and chemicals, The Champion Paper & Fibre Co. Ten years from now, he predicted, there will be just as much clay and adhesives used. New lines of properties will be developed. Dull coated papers are a matter of educating ourselves.

Most of the paper industry, he

Paper sculpture by Giuseppe Baggi

Pulp from Gottesman means...

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chided, are doing the same thing in the same way, but are keeping it away from their competitors. Many a coating mill superintendent formulates coatings to confuse competitors because of its complications and also confuses his people in the mill.

• Pre-cast clay coating aroused much interest at Buffalo (PULP & PAPER, April 17, 1961, p. 25). Explaining the process was Frank D. Bergstein, executive vice president, The Interstate Folding Box Co. Basically, the process consists of applying a pigment-binder slurry to the casting surface, such as a mirror finish drum or belt. This layer is smoothed and dried while on the casting surface. The web to which this dried layer is to be transferred meanwhile has a thin uniform layer of adhesive applied to it which is brought to a controlled consistency. The tacky adhesively coated web is then pressed against the dried clay layer and then the web is led away from the casting surface with the clay layer firmly laminated or bonded to the adhesive-coated web. The casting surface returns to the clay application pan for re-application of the slurry. Interstate has patents pending for this process.

Interstate has just started up a new 100 in. wide coater on its 100 in. wide 6 cylinder board machine. The coater was built by Dilts Div., The Black Clawson Co. Advantages of the process cited by Mr. Bergstein: Exceptionally high drying rates. Efficient drying means equipment is compact and relatively high speeds, for cast coating, are possible. Rheology system is simplified because they are always coating clay on the same surface regardless of the nature of the web to be coated.

Because of the excellent coverage, said Mr. Bergstein, problems in the base stock are simplified: Dirt or asphalt spots, for example, do not show through. "We have an absolutely uniform coating layer because one side of the clay layer is mirror smooth, being against the drum belt and the other side is contacted by smoothing means. We can say with absolute confidence that our coating is one mil thick," he emphasized.

Since no water is added to the base stock in applying the clay layer, and only a small amount of water in applying the adhesive, there is no problem in slowing up on- or off-machine coating because of added water.

End product advantages of Glosscoat reported by Mr. Bergstein are: Brightness of 82 or more whether coating is applied over chipboard, kraft colored board, or white patent coated. Gloss is generally equal to conventional cast coated sheets—in the range of 15 or more on a Gardner gloss meter at 20° angle. Good folding properties. Non-fade properties are superior. Ideal conditions for colored clay coated end products. Because of high opacity, small amounts of color go far and final color is substantially independent of base stock. Excellent printability.

• Trailing blade coatings their rheological properties and flow modifiers were examined by James F. Hern, Nopco Chemical Co. Using a modified Time-Life Bench model blade coater, Nopco studied the effects of additives rheologically, including other variables such as coating solids, machine speeds, blade pressures, blade angles, base stocks, and formula types on flow properties and coat weights obtained.

All the pilot coated papers were supercalendered. Summarized Mr. Hern: Printability, pick, brightness and gloss all increased with increased coat weight. Pick tests were lower with protein coatings, probably due to lower adhesive ratio of this color. No visual differences in printability with the various additives could be noted, other than improved printing effects with increased coat weight. Printability at 7-8 lb./ream was good. Some additives, especially calcium stearates, showed improved gloss. This was more pronounced with protein than with starch. Inspection under black light showed little pattern with any of the coated papers.

Ink penetration increased with increased coat weight. Coating penetration was greater with protein color, probably because of its lower viscosity and vehicle retention characteristics. No additive adversely affected any surface or printing properties of the coatings.

Mr. Hern said many trailing blade coatings require considerable amount of screening to minimize scratches and streaks in the finished sheet. Screening, however, causes entrapped air that may affect the coated sheet surface. This is solved by a defoamer. Care should be taken, he concluded, to select a defoamer that will not adversely affect flow properties of the particular coating system.

Space limitations do not permit complete coverage in PULP & PAPER. The complete papers presented at the 12th Coating Conference will be published in Tappi magazine. ■

Coating May Reach 60 Million

tons by year 2000, reports Castagne; indicates other trends

BUFFALO, N.Y.—More than 900 TAPPI members at the Coating Conference here were jarred when they heard one speaker say it was possible for coated paper and paperboard capacity to grow to 60 million tons by 2000! The speaker was Maurice R. Castagne, associate editor of PULP & PAPER, who discussed future coating trends.

This was not a prediction but was based upon studies made by Resources for the Future, Inc., which has projected pulp, paper and paperboard demand to the year 2000. The RFF study estimates a 1½% population growth per year to 2000 and a per capita income for a family of four of $20,000.

As reported in PULP & PAPER (Jan. 9, 1961), Benjamin Slatin, economist for the American Paper & Pulp Assn., says such projections would require 240 million tons of paper and paperboard production by 2000 and a per capita paper consumption of 1500 lbs. If coated paper and paperboard capacity rises to 25% of total capacity, explained Mr. Castagne, some 60 million tons of capacity would be required.

He reminded the incredulous that coated paper and board capacity has grown from about 2,150,000 tons in 1950 to about 6,592,000 tons in 1961. In the same interval, coated printing paper capacity has risen from about 1,020,000 tons to about 2,317,000 tons; coated paperboard capacity from an estimated 1,130,000 tons to probably more than 4,275,000 tons.

Additional ideas for coating trends were discusssed by PULP & PAPER's associate editor based upon a survey made to some 50 coating men which netted a 90% response.

..Fluid Power news

OILGEAR 40 Years of Fluid Power

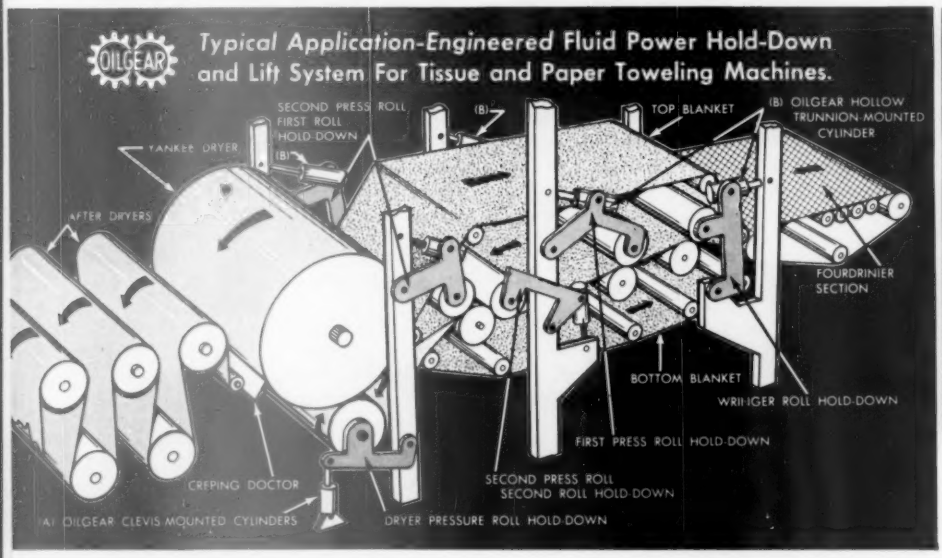
From Oilgear *Application-Engineering* Files

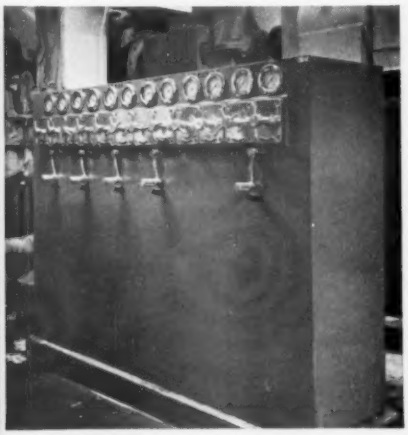
HOW OILGEAR HOLD-DOWN AND LIFT SYSTEMS INCREASE ROLL LIFE—IMPROVE PRODUCT QUALITY

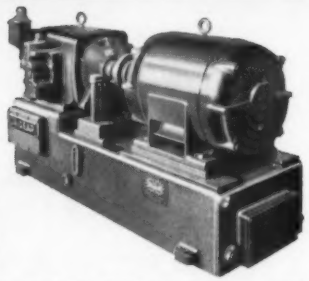
USER: *Scott Paper Company, Chester, Pa.; Everett, Wash.; Mobile, Ala.; Fort Edward, N.Y.*

PROBLEM: To supply hold-down and lift systems for rolls on paper machines, paper coating machines, super calendars, laminating and similar processing machines — that can be accurately controlled from a simple remote control panel.

USER REQUIREMENTS: 1. Provide constant, uniform, preset roll pressures. 2. Smooth lowering and/or forcing of pressure rolls downward to avoid damage, such as fracturing or flatting. 3. Fast, easy, positive selection of such functions as "Lower," "Hold Down," "Release," "Lift," "Hold Up," "Off." 4. Accurately, infinitely vary the pressure on either end of each roll independently over a wide range, at any time, to balance the opposing forces created for most efficient machine operation and product quality. 5. A direct-reading, constant, visual indication of the pressure and force exerted on either end of each roll. In addition, the systems must be simple . . . clean . . . easy to install and maintain . . . facilitate replacement of worn rolls . . . trouble-free, dependable, heavy-duty, for continuous, 'round-the-clock operation.







Top Photo: One of the Oilgear Hold-Down and Lift System Control Panels as installed with each of Scott Paper Company's two, new tissue machines in their Southern Division Mill, Mobile, Ala.—symbolized in the schematic drawing, left. Daily production from these machines averages 200 tons of Scott's bathroom tissues, toweling and wipers for household and industrial use. **Right:** A typical Oilgear Heavy-Duty "**Power-Pak**"—Variable Displacement Pump, electric motor drive, and reservoir base — used with Hold-Down and Lift Systems.

SOLUTION: *Oilgear Application-Engineered Hold-Down* and Lift Systems consisting of Oilgear Heavy-Duty, Constant or Variable Displacement Pumps that supply *Fluid Power* to Oilgear "Custom-Quality" Cylinders through separate Oilgear Valves on a remote control panel — provide smooth, positive motion and steady, preset holding pressures. Cylinders can be mounted directly, or through mechanical linkage, to pressure roll bearing ends. Simplicity of pump drive and installation keep machine cost at a minimum. Remote Control Panel provides fast, positive selection of all functions — operator can "Lift," "Hold Up," "Release," "Lower," "Hold Down" — at any time; accurately, infinitely vary pressure on either end of each roll independently, and have constant, direct-reading, visual indication of pressure and force being exerted at bearing ends of *each roll.*

ONE USER STATES —*"The control panel indication is so accurate that a worn, 'off-balance' or out-of-round roll can be readily detected."*

Another User Reports — *"Oilgear is far superior to other systems . . . direct gage readings have enabled us to experiment with varying degrees of pressure on the rolls, so that we can operate with less pressure than we hitherto thought feasible. This has resulted in improved product quality and longer roll life."*

Oilgear is no "stranger" in the paper industry . . . other Oilgear Linear Drives are in operation on pulp log splitters and pulp baling presses. Similarly, the highly efficient, long-life, Oilgear Heavy-Duty Variable Speed Rotary Drives are compiling enviable records on special purpose paper machine sections . . . on complete paper machines . . . on multi-color printing press drives . . . or unwinder and winder drives . . . on laminating and coating machine drives. It's well worth your while to consider Oilgear — *"for the lowest cost per year!"*

For practical solutions to YOUR linear or rotary motion problems, call the factory-trained Oilgear Application-Engineer in your vicinity. Or write, stating your specific requirements, directly to . . .

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Application-Engineered Fluid Power Systems
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Phone: Mitchell 5-6715 . . . Direct Distance Dialing Code — 414

Biggest potentials for coated paper grades, according to this survey, are publication, cheaper printing papers and web offset and gravure papers. Surprisingly, newsprint was also included. In paperboard, the biggest potentials are container and carton grades; solid bleached boards, boards for packaging liquids; grey chipboard and high yield bleached board.

Some board grades that could be upgraded are greaseproof for food packaging; board for packaging of liquids; folding boxboard for household products, corrugated medium; natural kraft; grey chipboard for sugar cartons; corrugated carrier stock and white lined foodliner grades

Major coating tool of the 60's according to the survey, will be the blade coater—apparently. Apparently, said Mr. Castagne, because there are some equally adamant that the full potentials of other coaters, such as the roll coater, have not been realized.

The survey said these modifications are needed on the blade coater: Cleaner operations; higher speeds, non-wearing blades with faster changing without surface defects; elimination of scratches; versatility for all coating weights; harder blade metal, better control of coat weights and ability to handle higher solids.

Other highlights from the survey: dull or non-glare coated papers are definitely a trend, but at present high gloss denotes quality and it is hard to change public opinion. Coated news, 75% said, will be a trend in the next ten years. In pigments, high opacity, high brightness, bulk, very fine particle size, cheapness, lower binder demand, easy dispersibility, low abrasiveness will be qualities sought by coating mills.

As for latices, the speaker said that 10 years ago there were no latices used in paper coatings, today some 35 million lbs. are used. About 25 million lbs. are styrene butadiene; about 9 million lbs. are acrylic emulsions and the rest are polyvinyl chloride and polyvinyl alcohol. ■

Exports brighten market pulp gloom

By ALBERT W. WILSON, Editor

NEW YORK—Puget Pulp's president, Lawson Turcotte, really hit the proverbial nail a square one when he indicated to his stockholders that the overseas demand for woodpulp is a godsend to the North American producers. You can underline that statement as strongly as you wish—the pulp marketers would be a gloomy lot if it weren't for the fantastic prosperity boom of Europe which still holds up strongly as mid-year nears.

Still and all, the U.S. Pulp Producers Assn. figures showing that exports of United States pulp overseas up 17% for the first quarter, over the corresponding 1960 period, is a bit misleading. Actually, the early months of 1960 were soft months, and the big upswing on exports didn't start till mid-year.

Actually, it will be a surprise to the well-informed pulp producers if 1961 is quite as good as 1960, when a record 1,100,000 tons was exported by the U.S. producers alone. Canadian marketers also set a new record.

First three months of this year showed European deliveries of U.S. market pulp to be up 10.7%. But compared with the average quarter of 1960, it is down 3.2%.

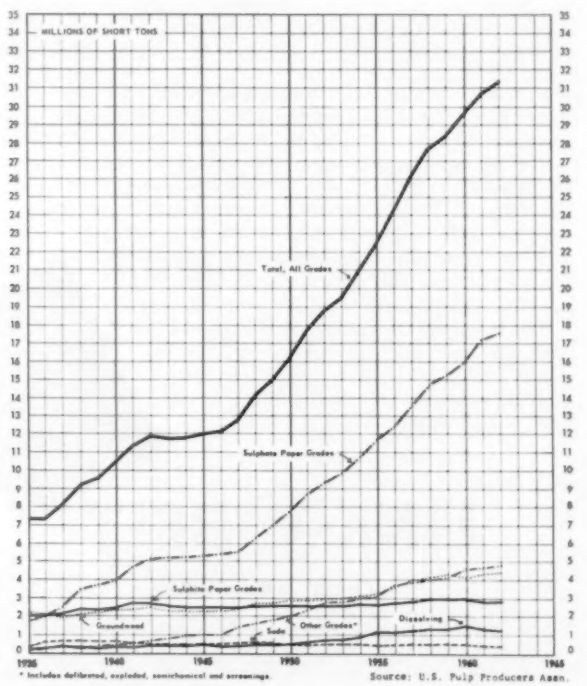
Finland is supplying Continental Europe and Britain with about 150,000 more tons this year. It has come

U. S. WOODPULP CAPACITY
(in tons of 2000 lbs., air dry weight)

	1961	*1962*
Dissolving & Special Alpha	*1,250,675*	*1,210,675*
Sulfite, Paper Grades	*2,910,010*	*2,926,986*
Bleached	2,305,275	2,321,918
Unbleached	604,735	605,068
Sulfate Paper Grades	*17,158,073*	*17,557,021*
Bleached	5,425,277	5,481,732
Semibleached	1,625,607	1,648,579
Unbleached	10,107,189	10,426,710
Soda	*406,042*	*396,967*
Semichemical	*2,891,294*	*2,933,791*
Bleached	475,691	475,691
Unbleached	2,415,603	2,458,100
Groundwood	*4,336,184*	*4,432,257*
Bleached	*899,906*	*919,086*
Unbleached	3,436,278	3,513,171
Other Mechanical	*1,747,879*	*1,748,651*
Screenings	*80,184*	*80,184*
TOTAL	*30,780,341*	*31,286,532*

—U.S. Pulp Producers Assn.

UNITED STATES WOODPULP CAPACITY 1935-1962



Shave conveying costs with LINK-BELT woodyard chains

On even the heaviest of woodyard conveyors, around either lumber or pulp mills, these Link-Belt chains give you the staying power necessary to keep operating and maintenance costs at a minimum.

C Class combination chain with steel sidebars, and center links of malleable or *Promal*, is a favorite conveying chain throughout the industry. Specify file-hard *Promal* for highly abrasive conditions (as with sandy bark) and for the extra strength and wear resistance demanded by heavy loads. And for even heavier duty conveyors, SS Class bushed chain is interchangeable on the same sprockets.

For further facts, contact your nearest Link-Belt office or authorized stock-carrying distributor listed under CHAINS in the yellow pages of your phone book. Or write for our new, comprehensive Catalog 1050.

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LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 15,087

in with new bleached pulp production. Sweden, likewise, but not so much. Maybe 75,000. Sweden is happily over an embarrassing interlude when its paper conversion was temporarily even reducing its unbleached capacity for market.

Overseas shipments of market pulp from U.S. mills in the first three months of 1961 totalled 288,720 tons, up 41,000 tons. Shipments to U.S. mills were down nearly 30,000 to 459,142. Domestic and overseas shipments combined were up only 1%, but as against the average quarter of 1960, they were down 1.3%.

Europe was still the big and hungry pulp market overseas. Even with more Scandinavian and Canadian pulp, it wanted 170,207 tons from U.S. mills —17,000 more than in the first quarter of 1960. To Asia, Africa and the western Pacific rim went 64,745 tons, an increase of 12,000. To Latin America, 38,813, an increase of 11,000.

In view of Canadian and Scandinavian pulp production still coming in, it seems rather unlikely that even in 1962, the U.S. exports of woodpulp would reach quite as high as the 1960 record. This year, Canada and Scandinavia are bringing in 700,000 tons more capacity. Next year they will bring in about 800,000 tons more. The stimulation of trade in Europe from its market blocs and its well-stimulated taste buds for paper products and packaging should call for an increasing flow of pulp to Britain and the Continent. But surely not at such an accelerated pace as has been during the last year.

Paper-board production in U.S. showed a slight rise for the week ending May 6 over the previous week. Paper moved to 91.1% (ratio of production to capacity) from 89.8; paperboard to 93 from 91. Paper was still 6.2% below the same week in 1960 but board was at the same level.

This tends to confirm the announcements of some leaders that the long-awaited rise in paper and board orders is under way. ■

New forming equipment boosts tissue output

BELLINGHAM, WASH.—A West Coast mill has increased tissue production on two Yankee machines by installing recently developed forming equipment. The equipment was produced by Beloit Iron Works and installed at Pacific Coast Paper Mills Div. of Puget Sound Pulp & Timber Co., here.

These were the first installations utilizing the new processing developments. Two other machines in the U.S. have been similarly equipped and are now operating.

Main components of these installations are a suction breast roll and an adjustable flow conversion unit in conjunction with the slice. Neither machine has yet run fast enough to ascertain the maximum forming capacity of the new units.

Sheet forming takes place at the suction breast roll under the top slice rather than on the flat Fourdrinier wire. Two boxes are incorporated in the breast roll. The first, a high-vacuum unit, forms the sheet. Low vacuum on the second box holds the removed water in open face of the breast roll shell for delayed, centrifugal discharge to a special deflector diverting the water to the saveall.

The top slice lip is at a fixed setting in relation to the wire. Flow characteristics for achieving desired sheet formation are obtained by the special apron board and curved top slice with adjustments for controlling the flow to forming area of the suction breast roll.

These Beloit units were installed on Pacific Coast Paper's No. 3 and 4 machines. Prior to the conversions each had a conventional solid breast roll and straight Beloit slice. The solid rolls were replaced with suction breast rolls and the new forming slice components. Each machine continues to use a 5-roll Beloit pressure headbox.

No. 4, a 16 ft. Yankee, was limited to around 2100 fpm for production of quality tissue before the conversion. It now makes quality 2-ply facial and toilet tissue at 2900 fpm; single ply tissues at 2600 fpm.

Advantages of the present set-up include (1) improved and uniform sheet formation; (2) increased machine production; (3) consistent performance with minimum attention throughout the entire range of machine speeds. ■

Major firms continue new product search

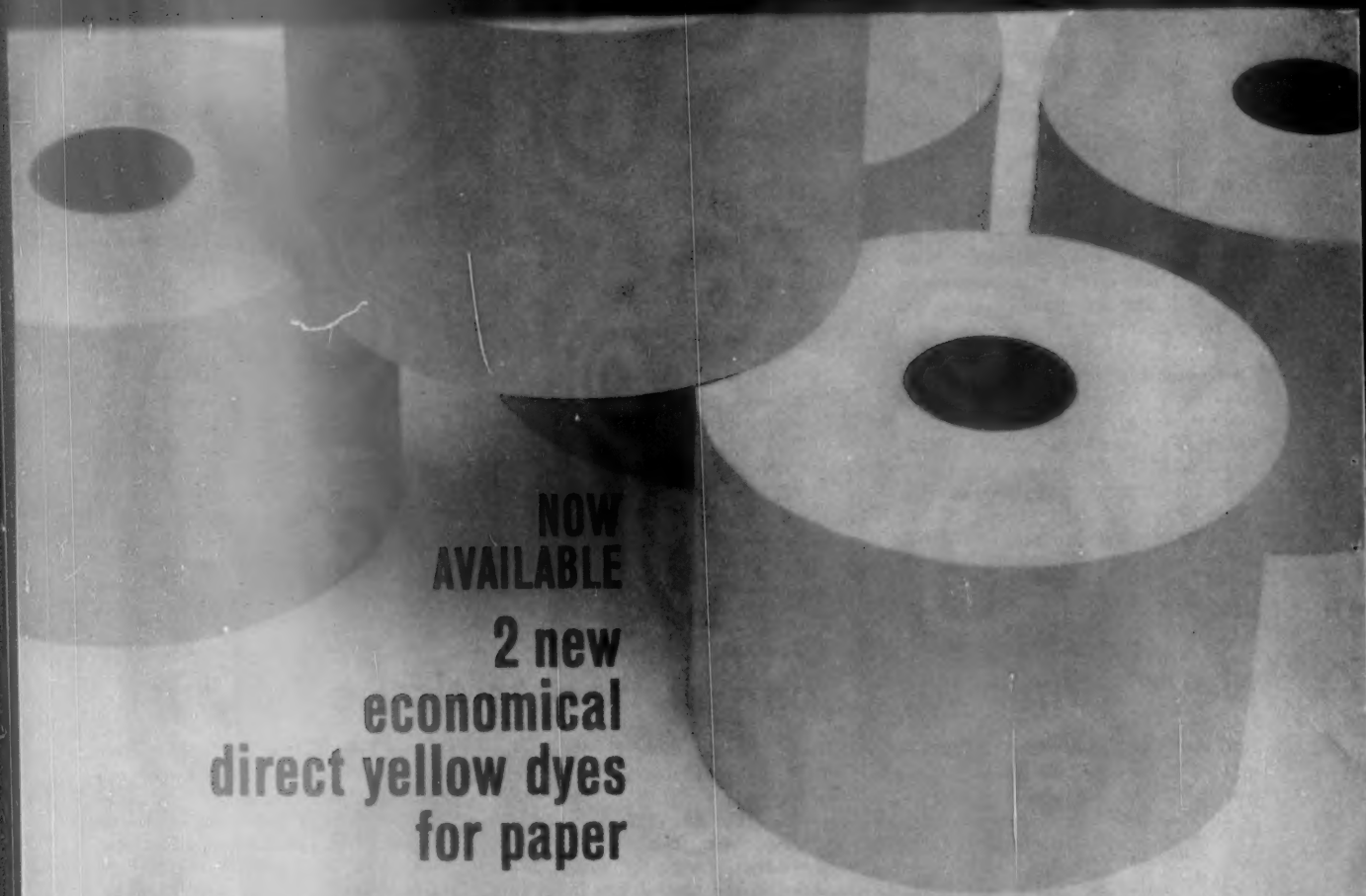
MAJOR PRODUCT manufacturers are continuing their assault on new markets particularly in the box field. These new developments are aimed at various objectives from reducing materials handling to providing better printability.

Olin Mathieson for instance has developed a new shipping container called Scuff-Master which guards against scuffing the finish of a packaged product during shipment. A special coating developed in Olin's Packaging Div. labs at West Monroe, La., reduces the abrasive effect of the container board on the product resulting from in-transit vibration and product movement. Aim: Reduce lost time and expense caused by refinishing merchandise scuffed in shipment. It is expected to find widest application for products with baked enamel, chrome or wooden finishes which are especially susceptible to scuffing.

The new type box is a custom operation because of different requirements of paints, metallic and wood finishes, etc. Olin designers evaluate, test and develop a package for each product rather than product groups.

A "new dimension" in corrugating board has been announced by Alton Box Board. Called "Elite Flute" the new board reportedly combines the strength and rigidity of regular double-face corrugating board with the fine screen printing available only on folding box boards in the past.

It is one-sixteenth in. thick compared to B-flute's one-eighth in., and has eight flutes to the lineal in. Because the flutes are so close together, the "washboard" effect of regular corrugated board is virtually eliminated. Another advantage: Close-coupled flutes and slim profile of board enable it to be printed on con-



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2 new economical direct yellow dyes for paper

FASTUSOL® YELLOW RP
FASTUSOL® YELLOW RG

The dyes used in the coloring of paper add considerably to the cost of the finished sheet. GDC has now developed two new, low-cost, non-dusting direct yellows which offer all the benefits of a premium direct dye at minimum expense.

These new FASTUSOL YELLOWS produce extremely light-fast and bright greenish-yellow shades of the highest degree of even-sidedness. They are ideal for coloring all types of paper—bond, ledger, cover, text, etc.—both sized and unsized.

FASTUSOL YELLOW RP and RG are readily bleached with chlorine for simplified re-use of broke. They can be added dry to the beater without danger of showing color specks. They show no indication of burning-out or migration, hence being eminently suitable for coloring board dried at high temperature.

Try these dyes now in your furnish. The quality of our dyes is backed by the finest skilled technical service and prompt deliveries.

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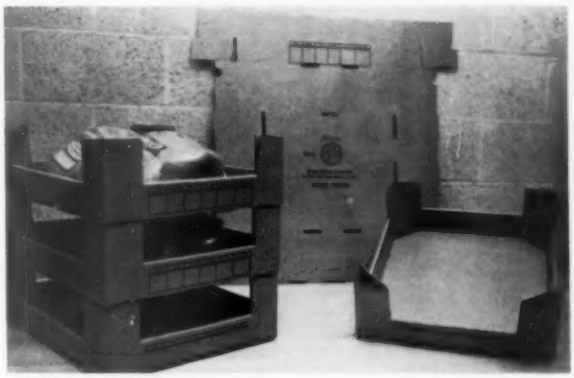
ventional letterpress equipment and to cut and score it on folding carton cutter-creasers. It is also available with top quality fine-screen printing comparable to the very best in lightweight folding cartons.

A unique box which eliminates one handling and incorporates a number of other advantages for poultry processors has been introduced by Consolidated Water Power and Paper. The post-style box utilizes self-locking members, removing the need for cost of adhesives, taping, stitching or stapling. It can support the weight of a man on each of its four corners and the poultry box bottom forms a tray which is open on all sides for quick freezing.

Tests showed the new box speeds flow of products in and out of the freezer while eliminating the extra handling required with metal racks. Strong triangular corners easily support loads of 18 large or 22 smaller boxes in a vertical stack. Its open-sided construction also eliminates the common problem of stacking in only one direction. ■



OPEN-SIDED BOX is shown here as it would be stacked in a freezer. This new type poultry box was developed by Consolidated Water Power and Paper, is just one of many new developments announced by industry recently.

DuPont readies new product aid to industry

WILMINGTON—DuPont Co. will soon introduce a new product, "Elvax" vinyl resin, a copolymer of ethylene and vinyl acetate expected to increase the use of wax in the paper, packaging, and adhesive industries.

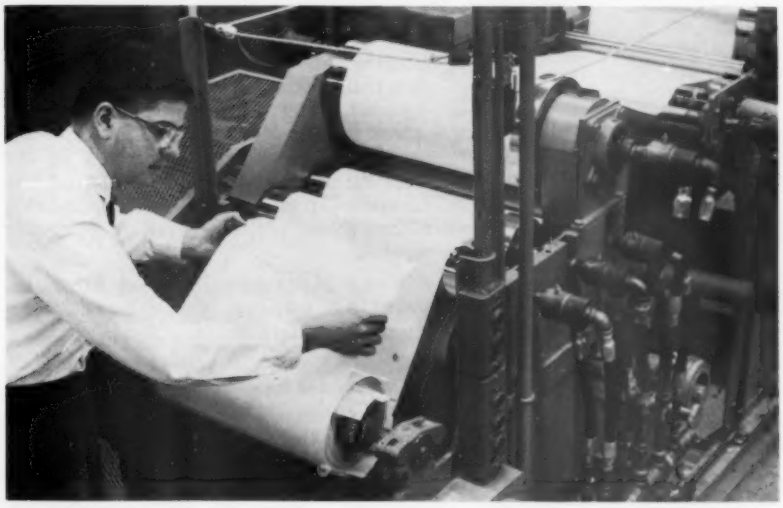
It will be produced in a new plant at Orange, Texas, which will also make high-pressure polyethylene. "Elvax" vinyl resins impart toughness, flexibility and adhesion to paraffin wax and other brittle low molecular weight materials. It is presently being produced in limited quantities, will be available commercially later this year.

Wax coatings with "Elvax" do not exhibit the brittleness of unmodified paraffin wax coatings, which tend to flake and break if creased or flexed. Du Pont has evaluated the following major uses for "Elvax" at its research and sales development laboratories:

Wax additive: In waxed glassine and waxed breadwrap, "Elvax" vinyl resin provides two- to four-fold improvement in heat-seal bond strength, water vapor barrier properties plus tough, glossy, nonflaking coatings on butter, bacon, and frozen food cartons with up to five times the grease resistance of coatings now used.

Wax coatings: Blends of paraffin wax containing 30 to 40% "Elvax" resin can be applied to paper, film, and foil by hot-roll coating. The coating is completely flexible and provides water vapor barrier properties equivalent to laminations made with medium density polyethylene.

Adhesives: Unlike present label coatings "Elvax" provides universally strong adhesion to polyethylene, cellophane, foil, waxed paper, "Mylar" polyester film, and many other materials. "Elvax" also is expected to find use in hot-melt adhesives in the packaging and bookbinding, and in lamination of packaging materials. ■

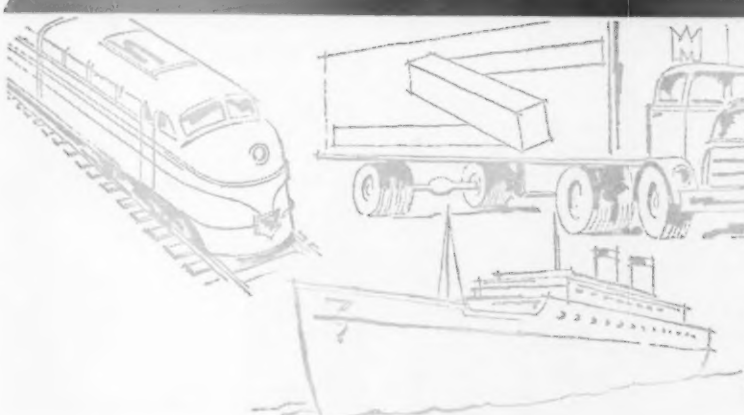


HOT-MELT COATING on paper is applied at research center resulting in flexible sheet which will not flake.

TWO PROPERTIES of "Elvax" vinyl resin are shown here: When added to paraffin it becomes tough, pliable, can be knotted; when added to coatings they can be bonded to foil, or into wax paper.

Buyer's Memo to Himself:

Must have better faster service... Call Marathon



Strategically located sales offices; excellent transportation and shipping facilities by land, water, air or rail; and more than adequate production from manufacturing plants located in the midst of the best timber-producing regions of the country—all guarantee you a dependable source of supply, wherever or whenever needed.

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Latest plans announced by Brown, others

A NEW 101 IN. BLACK-CLAWSON paper machine equipped with a 12 ft. Yankee dryer has been ordered by Brown Co.'s Cascade mill at Gorham, N.H. It is expected to be in operation by May, 1962.

The machine, of advanced design, will have all-electric sectional drives, will include high accuracy speed regulators and will be supplied from pulper, refiners and other equipment supplied by Black-Clawson's Shartle div. Brown plans to market cellulose wadding in bleached and unbleached grades as well as a full line of toilet and facial tissues for industrial and institutional uses. Pulp will come from Brown's Burgess sulfite pulp mill. Engineering services will be supplied by Rust Engineering Co., Pittsburgh.

Great Northern Paper Co. will build a new $1.5 million Engineering and Research building at the company's Millinocket plant. Construction will begin next month with occupancy slated for March, 1962. Increased emphasis by the company on research and engineering is making the move a necessity, said Great Northern President M. G. McDonald.

The modern new building will provide an area of 40,000 sq. ft. for laboratories, engineering drafting, offices and a library. In addition there will be 13,000 sq. ft. devoted to a pilot plant, other experimental facilities and storage space. The new building will also include an administrative wing.

The 60-year-old firm is the largest independent producer of newsprint in the U.S. and makes other types of groundwood printing papers at two plants, one at Millinocket, the other in East Millinocket, Me.

Albemarle Paper Mfg. Co. in Richmond, Va., has announced plans to build a new general office building on the approximate site of Richmond's famed "Gamble House" with the building modeled after the Revolutionary War mansion. The original building was designed by Benjamin Latrobe and its plans are on file in the Library of Congress.

The 240 by 59 ft. white brick building trimmed with limestone will overlook Gamble's Hill Park and the two paper mills of the company. Company also has a multiwall sack plant, a folding box plant (Randolph Paper Box Co.) and a corrugated container plant (Richmond Container Co.) in Richmond as well as its big pulp and paper mill, the Halifax Paper Co. div., in Roanoke Rapids. It also has converting operations in New York, Ohio and Maryland. The new building will cost about a million dollars.

Ralph L. Smith Lumber Co., Anderson, Calif., will be acquired by Kimberly-Clark Co. This, in turn, means K-C will build a kraft pulp mill at Anderson in conjunction with the existing Smith lumber manufacturing facilities to form an integrated operation. Because of high costs which will be required to meet the stringent effluent standards specified by the regional water pollution control board, the provisional purchase offer was revised downward. The original proposal called for 4½ shares of K-C stock for each share of Smith stock. The revised ratio is 3.95:1, representing a market value of approximately $29 million based on recent price of K-C stock. Start of plant construction is expected by end of 1962.

International Paper Co. has received signed contracts from Oregon state land board granting easements for building $30 million kraft mill at Gardiner. The easements allow IP to lay an effluent line through beach area and extend out into the ocean, and to appropriate water from two large coastal lakes. ■

NEWS SECTION
Continues on page 36

Sales & Earnings – Year 1960

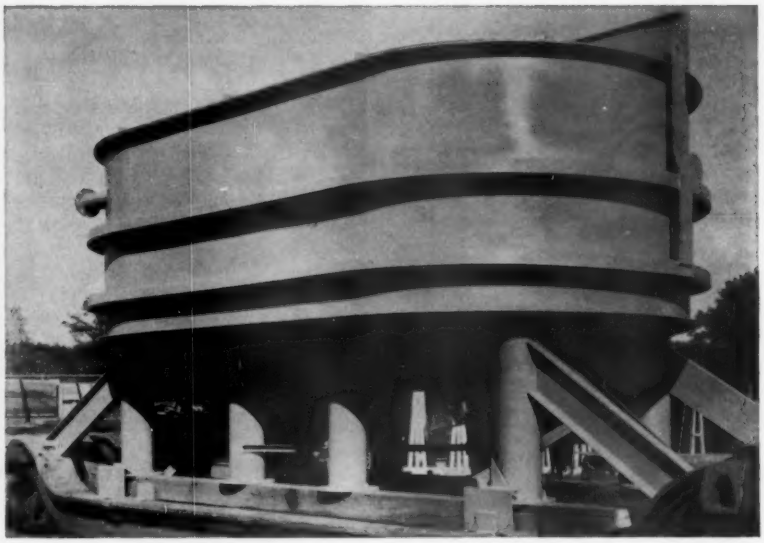
	Net Sales (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share
Market Pulp (also Lumber, etc.)					
Brown Co. (11/30)	$ 59,173	$ 2,287	3.9%	$ 1,347	$0.51
Georgia Pacific	221,998	22,210	10.0	15,210	2.39
Puget Sound Pulp & Timber	44,854	9,779	21.8	4,944	1.70
Rayonier, Inc.	129,100	15,674	12.1	9,504	1.63
Weyerhaeuser	457,916	71,451	15.6	47,751	1.59
Northern Integrated Cos.					
Abitibi Power & Paper	146,340	26,066	17.8	12,266	2.83
Consol. Water Power & Paper	88,780	17,325	19.5	7,857	3.08
Diamond National	236,654	24,006	10.1	12,706	2.69
Fibreboard Paper	111,932	3,275	2.9	2,083	1.16
Glatfelter, P. H.	26,383	5,154	19.5	2,374	3.27
Great Northern Paper	62,013	5,824	9.4	3,113	2.99
Hammermill Paper	78,655	n.a.	n.a.	3,255	2.18
KVP (9/30)	126,958	11,034	8.7	5,477	2.47
Oxford Paper	74,255	5,759	7.8	2,784	2.26
Warren, S. W.	71,941	11,039	15.3	5,258	2.44
Integrated—North & South					
Champion Paper & Fibre (yr. 3/31) (4, 1, 2 & 3 Qtrs.)	204,010	n.a.	n.a.	7,283	1.38
Container Corp. of America	327,263	35,412	10.8	17,076	1.57
Crown Zellerbach	553,711	73,076	13.2	40,076	2.81
International Paper	1,012,648	140,516	13.9	71,669	1.74
Kimberly Clark (yr. 4/30) (4, 1, 2 & 3 Qtrs.)	409,256	64,893	15.9	31,528	3.50
Mead Corp.	338,788	28,026	2.3	13,746	2.58
Riegal Paper	97,917	6,578	6.7	3,068	1.84
St. Regis Paper	536,199	40,753	7.6	21,958	1.91
Scott Paper	313,276	54,830	17.5	27,730	3.40
Union Bag-Camp Paper	212,959	38,615	18.1	18,590	2.39
West Va. Pulp & Paper (10/31)	250,282	20,667	8.3	11,017	2.07
Non-Integrated Paper Co.					
Amer. Writing Paper	14,267	1,209	8.5	583	2.15
Convertor Co.					
Dennison Mfg.	45,523	3,859	8.5	2,303	1.82

n.a.—Not available

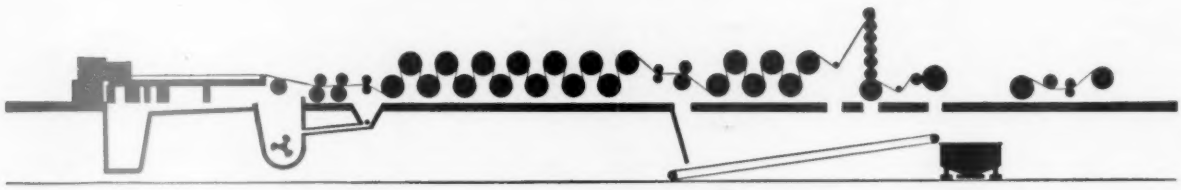
The sales and earnings for the year 1960 were especially prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guaranty is given as to their accuracy.

IMPCO "BROKE HANDLING" SYSTEM AT FRASER PAPER, LTD.

The Press Section Repulper-Conveyor discharges 30 per cent consistency web to the couch pit.



This is Fraser's Solvo Pulper on its way to the mill. It's our Duplex model with twin pulping elements.



Here's how Fraser handles broke on their new high speed 234 inch paper machine at Madawaska, Maine. They do it with an Impco 36" Cantilevered Agitator in the couch pit — an Impco Repulper-Conveyor at the press section — and an Impco Solvo Pulper at the dry end. The Solvo installation features: conveyor belt loading — batch or continuous pulping — and built-in pumps for simultaneous pulping and pumping action. When batch pulping, they are obtaining spot-free discharge on even their most difficult grades such as wet strength and 27 to 60 pound hard-sized bond sheets.

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felt facts

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Clockwise, by groups from left are: Laurence M. Woodside, Chief Eng., Tech. Field Services, and S. Stuart Engle, Tech. Director. John S. Sweet, Ass't. Chief Chemist; Carl C. Gordon, Chief Chemist, and Z. J. Chagnon, Div. V. President. Thomas O. Tietz, Adv. Mgr.; David F. McConaughy, Ass't. Chief Designer; W. S. Wightman, Ass't. Chief Designer; Harold F. Hedberg, V. President, Research, and James E. Smith, V. President and Gen. Mgr., Albany Felt Co. of Canada, Ltd. Samuel Van Praag, Sales Mgr.; Wayne G. Davis, V. President, Felt Sales, and James Garofalo, Service Eng.

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6107

MEETINGS

. . . June

CPPA conference on Chemical Pulping and Bleaching, Saranac Inn, New York—June 7-9

PIMA National Meeting, Hotel Robert Meyer, Jacksonville, Fla.—June 7-9

Maine-New Hampshire and New England Sections TAPPI, spring meeting, Wentworth by the Sea, Portsmouth, N. H.—June 9-11

Institute of Paper Chemistry, Sixth Seminar, Appleton, Wis.—June 11-30

TAPPI and CPPA, Statistics Course, Queens Univ., Kingston, Ont.—June 19-30

SAPI, Eastern, Golf Outing, Hackensack Golf Club, Oradel, N. J.—June 20

Michigan Div. PIMA and TAPPI, joint meeting, Gull Lake Country Club, Gull Lake, Mich.—June 20

Western Michigan University Pulp and Paper meeting, Electrical Engineering, Kalamazoo, Mich.—June 21-23

Zellcheming, Germany's annual technical meeting, Baden-Baden, West Germany—June 27-30

. . . July

University of Maine Summer Institute, Orono, Me.—two sessions, July 10-August 17

. . . August

International Congress of Pure and Applied Chemistry, Montreal, Can.—Aug. 9-11

TAPPI Lignin Symposium, Edgewater Beach Hotel, Chicago—Aug. 14-16

TAPPI Testing Conference, Queen Elizabeth Hotel, Montreal—Aug. 15-18

PIMA New York-Canadian Div., Saranac Inn, Upper Saranac Lake, N. Y.—Aug. 31-Sept. 2

. . . September

TAPPI, 11th Corrugated Containers Conference, St. Francis Hotel, San Francisco, Calif.—Sept. 6-8

CPPA, TAPPI, Fourth International Mechanical Pulping Conference, Edgewater Beach Hotel, Chicago—Sept. 19-21

Northeastern Div., PIMA, Poland Spring House, Poland Spring, Me.—Sept. 21-23

British Paper and Board Makers Assn., International Fiber Bonding Symposium, Oxford, England—Sept. 25-29

. . . October

TAPPI Deinking Conference, Hotel Harris, Kalamazoo, Mich.—Oct. 4-6

TAPPI Annual Engineering Conference, Shoreham Hotel, Washington, D. C.—Oct. 15-19

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PULP & PAPER

FOR THE SUPERVISOR...

FOR THE MANAGER...

GOOD MANAGEMENT

...in mill or in woodlands

In the second of two articles, Mr. Nicholson tells what it takes to make a good manager, either forester or mill man

By G. W. E. NICHOLSON, President, Tennessee River Pulp & Paper Co.

MANAGING, whether it is a woodlands operation or a plant operation, or any other business undertaking of magnitude, is now looked upon as a professional occupation. The recognition of moral values places emphasis on integrity as the prime characteristic for a leader. This is the quality which makes people want to trust him. The qualities most outstanding in a leader are his capacity to learn, his capacity for feeling, and his capacity to produce energy. Such abilities are essential in order to help employes grow in their jobs and to make sure that they know what is expected of them, and by defining the results wanted they will automatically accept responsibility.

Although creativeness, imagination and drive are other requirements for managerial leadership, the nature of the responsibility suggests that the best men won't work just for money. They will only work and do the best for their beliefs.

This is true in forestry as well as other areas of the industry. Forestry as a profession in the United States is of rather recent years, particularly when you consider that the first forestry school, The Biltmore School of Forestry located outside Asheville, North Carolina, was organized and directed by a German forester, Dr. Karl Schenck, as recently as about sixty years ago. I understand that Dr. Schenck passed away about two years ago.

Some of his former students became very prominent in American forestry and one of them, Cap Eldredge, has played a very great role in Southern forestry. I read recently an interview with Cap Eldredge in which he stated that Dr. Schenck laid down a very definite policy for his students to follow that "The best forestry is the forestry that pays most." In other words, not silviculture for silviculture's sake nor management for management's sake but only the type of forestry that pays most.

I believe we can truthfully say that such philosophy and attitude of management and employers prevailed generally in most endeavors and business undertakings at that time. In those days very few operators and owners of large timber tracts engaged deliberately in forest management with a view of continuous operation. Forestry was a mining operation.

About 30 years later, the lumber and timber products industries, through Article 10 of the Lumber Code under the National Recovery Administration, committed itself to a forest conservation code which prescribed acceptable forest management practices as devised by industry committees. This code was shortlived, as the Supreme Court declared the National Industrial Recovery Act unconstitutional.

The industry, however, was interested in forest conservation, and the American Forest Products Industries, Inc. was therefore organized as the spokesman for the conservation interests of the American forest industries. From this, later on grew the system of American Tree Farms and many other conservation and forestry educational measures. About the same period, a group of pulp and paper industry executives organized the Southern Pulpwood Conservation Assn. Many other organizations, like the American Forestry Assn., Forest Farmers Assn. and American Pulpwood Assn., together with state forestry departments and the U. S. Forest Service have brought about a very greatly changed attitude with the serious realization of the need of a major effort for conservation and perpetuity of the forestry and the national resources.

The concept of management responsibility has also changed greatly during these last 60 years and management theory is constantly . . . turn to p. 46

Photographed in Russia—A. W. Wilson, Editor

REPORT ON RUSSIA:

Paper industry lags, say Russians; meeting delegates criticize each other, complain of new equipment lying idle...the one bright spot: plans call for large-scale growth in '61

By V. BIRYUKOV and B. GALICH

This report of highlights of a recent Soviet pulp and paper conference in Moscow was provided from translations by "The Current Digest of the Soviet Press."

—Moscow

OUR COUNTRY is fabulously rich in timber. Huge pulp and paper combines and paperboard factories have been built on the rivers of the Western Urals and Eastern Siberia, in the forests of Karelia and the Volga area. The supplying of these enterprises with machines and modern equipment improves from year to year. Their workers, engineers and technicians are maturing. But the spiritual needs of our people are so great and diversified that the paper output is still too small for increasing the circulation of books, newspapers, magazines and other publications.

Are the reserves for paper production exhausted? No and no again. The latest papermaking machinery is not used at full capacity.

A crowd of 1100 people gathered in the Hall of Columns at Moscow's recent Pulp and Paper Conference to hear these words. Many of their names are well known in the country.

All of them together—delegates from Solikamsk and the Vishera, from Kondopoga and Krasnoyarsk—went to the thematic exhibition. They wanted to look at models of the latest machines and automation devices and to learn about the experience of others. The exhibition saddened them. Sergei Stankevich and Sergei Konovalov wrote in the visitors' book: "We learned little here; the latest production innovations are not indicated here, nor is the extensive use of paper in different fields of production, science, technology, culture and everyday life."

Maintain the speeds of the great Seven-Year Plan!—these were the thoughts with which practical workers and men of science, troubled by the lag of the pulp and paper industry, brought to the conference.

Comrade A. N. Kosygin, first vice-chairman of the U.S.S.R. Council of Ministers, opened the conference.

F. R. Kozlov, member of the Presidium of the Party Central Committee and secretary of the Party Central Committee, attended.

G. M. Orlov, first vice-chairman of the U.S.S.R. State Planning Committee, delivered the main report. (Ed.'s note: Orlov was leader of Soviet group which toured Canadian mills last year.) He reported that in the years of Soviet rule paper output has grown 12 times and pulp output 55 times. But, the speaker said, the output is extremely inadequate to satisfy the minimum requirements of the national economy.

The paper shortage still limits to some extent the circulation of many books, magazines and newspapers.

By 1965 the output of paper must be increased by 80%, of pulp three times and of paperboard five times, as compared with the start of the Seven-Year Plan. Special attention is being paid to increasing the output of newsprint 170%. This will make it possible to guarantee two newspapers to every Soviet family.

New machines to be installed at the Balakhna, Kondopoga and Solikamsk Combines, which are being expanded, will produce newsprint with the speed of a passenger train, i.e., 750 meters a minute. It is intended to build pulp and paperboard combines in Kotlas, Archangel, Bratsk, Selenga, Komsomolsk, Syktyvkar, Serov and Krasnoyarsk; they will be among the world's largest and will use woodpulp and the wastes of sawmills. Mighty combines to process the inexhaustible reserves of reed in the deltas of the Volga and Syr-Darya will be built in Astrakhan and Kzyl-Orda. The transition from wooden to paperboard packing will save up to 8,000,000,000 rubles a year.

Even more striking are the economies resulting from everyday and sanitation paper products: napkins, handkerchiefs, tablecloths, towels, diapers and sterile bandages. Their production cost is no more than 25% to 35% of the cost of laundering similar articles made of textile. Special paper mills will be built.

The rapid growth of paper and paperboard output will also increase the resources of waste paper, which is an inexpensive secondary raw material. In this connection, it is intended to build mighty combines for producing box cardboard from waste paper near the large cities in Moscow, Tula, Leningrad, Rostov, Kiev and Novosibirsk Provinces. This will make it possible to ensure the packing of products and industrial goods on a large scale. Moreover, paper cartons, cans and cups will be produced on a large scale to replace glass containers.

We must strive, Comrade Orlov said, to make sure that in all the major lumber-procuring regions all the waste woods from conferous and deciduous trees, as well as sawdust, are fully utilized to produce pulp, semi-chemical pulp, chemical pulp and fiberboard.

The speaker emphasized "the immense contribution" made by Nikita

Photographed in Russia—A. W. Wilson, Editor

KHRUSHCHEV — Planning Commission chairman Orlov credits him with drawing attention to use of reeds in southern river deltas.

Sergeyevich Khrushchev. Comrade Orlov said Comrade Khrushchev was "the first to call attention to the need for the broad utilization of reeds in the national economy."

The speaker pointed out that in the Russian industry output per worker is still very low, that there are still great staff surpluses, that plant security staffs are excessively large and that automation to direct and control production is being introduced insufficiently. He also criticized large shortcomings in the organization of capital construction and research.

In 1960, as in the first year of the Seven-Year Plan, the pulp and paper industry managed to overfulfill the plan slightly. However, it failed to fulfill the plan for newsprint and printing paper.

K. M. Gerasimov, vice-chairman of the Russian Council of Ministers and chairman of the Russian State Planning Commission, remarked that Russia "has substantial reserves for raising the output of pulp and paper. Simply by starting up new capacity and making better use of machinery, we can bring paper output up to 2,300,000 tons by the end of the seven-year period."

A lag in capital construction in pulp and paper enterprises and poor utilization of existing equipment were revealed by the speaker.

The Archangel, Irkutsk and Karelian Economic Councils in particular are slow with new construction; they keep expensive machinery and materials stored at depots for years.

Russia has 243 machines, according to the State Planning Committee. The country's combines also have 51 paperboard machines; there are a total of more than 500 operating aggregates. More than half are in need of complete modernization, the conference was told.

Enterprises under construction also need new machinery. But where are we to get high-speed machines, wire cloth, felts and other equipment? In the U.S.S.R. State Planning Committee and the U.S.S.R. Council of Ministers' State Committee on Automation and Machine Building they are starting to think about this after a long and unwarranted delay, it was said.

The Kama and Solikamsk Combines, among the Soviet Union's largest, are undergoing reconstruction. Within the next few years it is planned to replace six machines with modern aggregates, to build a newsprint mill and to bring the paper output of the two enterprises alone to 800,000 tons a year.

Attempts are now being made, although with great delays, to expand the output of machines, automatic devices and mechanisms needed by the Leningrad pulp and paper industry. According to S. A. Afanasyev, chairman of the Leningrad Economic Council, two plants of the economic region are specializing exclusively in the manufacture of paper-making machinery. By the end of the Seven-Year Plan they will produce more than 50 high-speed machines, aggregates and necessary equipment.

Actions of planners were criticized by Comrade S. V. Vorontsov, chairman of the Karelian Economic Council. He said, "It was decided to invest 3,000,000 rubles in 1961 in the construction of the Petrozavodsk Papermaking Combine. However, the planning organizations reduced the appropriation by one half.

"Of course, there is little logic in such actions. No matter how beneficial the modernization of existing equipment may be, it cannot end the present lag of the pulp and paper industry."

Capital construction and the reconstruction of existing shops and modernization of equipment have now acquired first priority importance. Comrade A. M. Golovochayev, chairman of the Perm Economic Council, complained that less money is to be given for construction and installation in 1961 than before. But he complained in turn of difficulty of putting appropriations to use.

Speakers criticized the design organizations, including the State Pulp and Paper Industry Design Institute. Technical documentation is late.

"Reserves exist, use them" said I. A. Ivanov, digester operator at the Sokol Pulp and Paper Combine, as he took the floor at the Moscow conference. He called for a speedy end to the lag of the paper industry. "After all, the 'Sokol' has been with us as long as we can remember," he said. "We inherited this enterprise from the days of capitalism. Its machinery is old. What can the Sokolites do to surprise the modern world?

"We know that the current Seven-Year Plan will be the beginning of the long-awaited reconstruction of our combine—this is in black and white in the government decree. In the meantime, however, our collective is using digesters that were installed in the last century. Yet, we digested 50% more cellulose in 1960 than in 1955. We produced more than 64 tons a year per cubic meter of boiler. We reduced the cycle of a digester, which was 14 to 15 hours five years ago, to ten hours."

Comrade Ivanov added, "We are repairing the digesters on schedule and in the shortest time possible. Whereas capital repairs involving the replacement of casings once took 20 to 25 days, we now manage it in ten to 11 days.

"A great part in raising cellulose output has been played by the fact that we boldly started to boil tough and super-tough cellulose and achieved a high output of it from wood.

"From time to time we hear about the indices of other pulp and paper enterprises and we Sokolites are often puzzled. We don't understand why at some plants, working under better conditions than we do and producing tough cellulose, the cycle of the digesters is 50% longer.

I believe that in view of the present shortage of cellulose in the country, this lack of diligence can no longer be tolerated."

Z. V. Uchastkina, doctor of technical sciences, cited the following data: we use 88 man-hours on one ton of paper, i.e., five times more than some enterprises abroad. ■

The need for accurate industrial draw-speed indication becomes increasingly critical. Competition has increased, production speeds rise, quality standards get stricter. Production losses from time lost getting sheet across machine can no longer be ignored. Before draws can be set accurately, they must be measured accurately. These are the reasons why . . .

St. Regis Measures Draw-Speed

THE PENSACOLA MILL of the St. Regis Paper Co. recently installed a digital draw and speed indicator on No. 3 kraft machine. At the same time, a digital linear foot counter was added to the machine winder. Both units use pulse counting methods for measurement and numerical readouts to display the result.

Since digital techniques are used from the initial sensing of speed, draw, or linear footage all the way through the numerical readout, the equipment is completely free of errors due to drift and retains its initial accuracy on a long term basis. Accuracies for the draw-speed indicator on the paper machine are ±.1 fpm for speed measurements and ±.2 fpm for draw measurements. The linear foot counter is accurate to ±1 foot and has a capacity of 99,999 feet.

Both the draw-speed indicator and the foot counter are self-contained and operate directly from mill a-c power. Magnetic reluctance pickups and toothed wheels, driven by each of the 12 machine sections and by one winder drum, provide pulse signals which are counted to determine speed, draw, or linear feet. On the face of the equipment are numerical readouts in 1 inch high numerals for easy reading without misinterpretation, and operator's controls.

At Pensacola, other factors showed a need for draw speed indicators. No. 3 machine is an electric sectional drive and operating personnel had to know if swinging on a section ammeter indicated section speed variations or merely correct regulator action keeping the speed constant under a cyclic mechanical load. At the same time, maintenance personnel needed the instrument to isolate any section regulators which needed attention. The addition of an extensible paper unit on this machine made it more desirable to have speeds and draws accurately measured.

With the objectives of improving both production and machine maintenance, St. Regis, in 1959, decided to apply a draw-speed indicator to No. 3 machine. An instrument combining the accuracy of laboratory type equipment in a package designed to operate without constant attention under industrial conditions was required. The desired instrument did not appear to be commercially available and so a development program was started with Westinghouse. The result is the instrument described in this article. The final model has been in operation for more than six months.

At the same time, it was decided to develop a footage counter with dual features of accuracy and dependability. A need for this device existed as a result of production procedures involving extensible papers. The length of sheet in each shipping roll would also be useful to the mill's customers and for production records.

Installation of equipment was preceded by a 3 month installation of a prototype unit, permitting unforeseen problems to be solved before the design was final. As a result, installation of the final design presented no difficulty.

Toothed wheels and pickups were mounted on existing drive shafts of the speed regulating tachometers to avoid the necessity of providing stub shafts for driving factory built tachometers. Experience has shown, however, that the expense of fabricating the wheels and pickups exceeds that of providing the stub shafts and purchasing factory built tachometers. The factory built units also present a neater and more protected installation.

Simplicity of external wiring of the system makes special supplier personnel during installation and startup unnecessary, although such service was provided on this first installation. Prior to startup, a discussion explained principles of operation of the equipment and the method of recalibrating it after a roll change. Since the equipment is entirely transistorized and uses relatively new digital techniques, it presents an initial psychological barrier to many maintenance personnel. The explanation period serves mainly to dispel these psychological barriers, as maintenance has proven to be practically nonexistent and readjustment after a roll change is by a purely mechanical procedure in filling out a worksheet. Over a six month period of continuous operation, maintenance has consisted solely of the replacement of one 6.3 volt light bulb. The indicator is located about mid-center in the dryers, and the resultant temperatures make use of cooling air necessary. Such a performance record indicates

A special report written for PULP & PAPER
by R. S. WELCH, plant engineer, St. Regis, and
W. C. CARTER, application engineer, Westinghouse

ELECTRONICALLY . . .

no necessity to carry an inventory of spare modules, although some spares are on hand at Pensacola. Module replacement, should it ever be necessary, will be facilitated by the keyed plugs and color codes on the modules which prevent incorrect placement of a module.

Benefits from the indicator have been in line with anticipations. When changing grades, the draws are preset to those used when the grade was last run and the sheet established across the machine without further draw adjustment. This is especially convenient on the extensible paper section, and has resulted in a substantial reduction in time required to get the machine in production.

Operators have developed confidence in the instrument, a major factor in its success. Maintenance personnel use the instrument to check reports of section draw variations and to isolate the source of trouble to either regulator problems or mechanical problems. In this respect, the draw-speed indicator not only facilitates troubleshooting, but also serves as an arbitrator between electrical and mechanical maintenance personnel.

How indicator operates

The draw-speed indicator uses a toothed wheel, driven from the shaft of a roll whose surface is in contact with the sheet, as an indication of sheet speed. A magnetic reluctance pickup head is mounted next to the wheel rim. This pickup has an output pulse each time a tooth on the wheel passes under it. Since the rpm of the toothed wheel is proportional to the sheet speed, the output pulse rate (output frequency) of the pickup head will also be proportional to sheet speed:

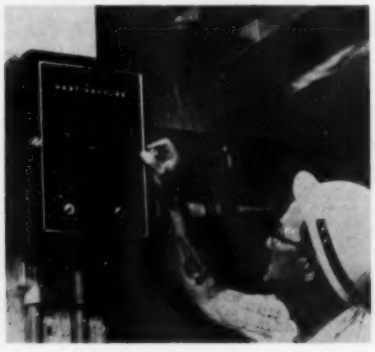
$$\frac{\text{Pulses}}{\text{Time}} = \text{K (FPM)}.$$

The proportionality constant K is dependent on the diameter of the roll in contact with the sheet, the number of teeth on the toothed wheel, and any intervening gear ratio. For speed measurements, the time during which the pulses are counted is made equal to 1/K, making the pulse count numerically equal to the section fpm. For draw measurements, the pulse counts from two pickups mounted on different sections of a paper machine are each obtained in this manner and subtracted. The difference is the draw between the two sections in fpm.

Number of teeth on each section pulse wheel is chosen in conjunction with the section roll diameter and any gear ratios present so that the required counting time for each of the sections is approximately the same. Since the counting time must be accurately controlled, a crystal oscillator is used as a timer. Counting the number of pulses out of the oscillator is then, in effect, an accurate time measurement. Each section will, in general, require a slightly different counting time, and so provisions are made for a separate ad- turn to p. 48

DIGITAL DRAW-SPEED indicator installed on No. 3 has two switches for readout selection.

LINEAR FOOT counter is located on winder. It has automatic printout in supt.'s office.



"ULTIMATION" . . .

Potlatch Opens Way To New Papermaking Control

A NEW STEP toward applying computer controls and data processing controls to the art of papermaking has been taken by Potlatch Forests, Inc. A specially tailored IBM 1710 process control unit will be installed at the Potlatch mill in Lewiston, Idaho, this summer. It will be in operation by September.

The IBM unit—first of its kind on the paper industry—will be tied in to one of Potlatch's two 500-ft. paperboard machines. The machine is currently producing 250 tons of specialized board a day.

Plans for the operation were first revealed at the International Conference on Automation and Process Controls in Paris. In the main, this computer unit is expected to provide close-tolerance quality controls which IBM says are now unobtainable in the complicated pulp-to-finished-paper process.

The 1710 unit is composed of the new 1711 data converter, which translates instrument readings into language understood by the computer, and the solid-state 1620 data processing system. The 1710 records, stores, analyzes and reports this converted data in visual form to specialists and technicians who control the process.

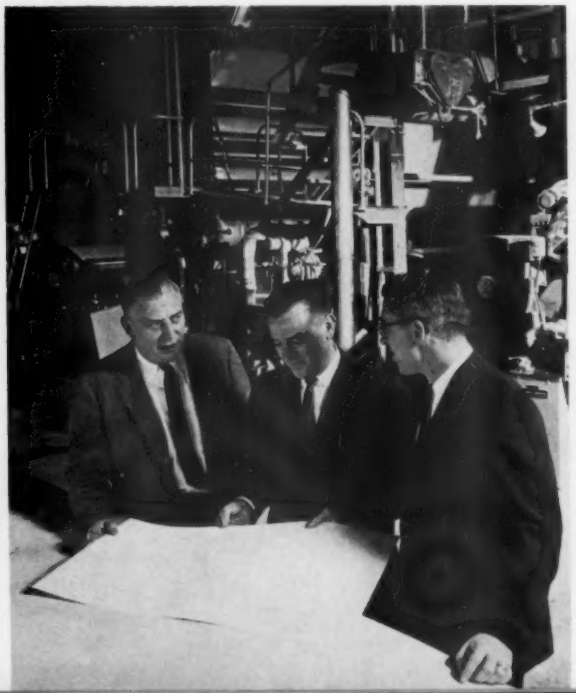
An air-conditioned room will be constructed immediately adjacent to machine No. 1 at the Lewiston plant. It is anticipated that the 1710 will be tied into the machine at more than 200 points along the process line and produce information for the operators on a scheduled basis. It can vary according to the operators' needs and the demands in high-speed typing, pin-pointing trouble spots in red. The operator makes the necessary changes after evaluating the information he has received in the light of his own experience.

Potlatch has previously pioneered developments in full-width air knife coating, use of 100% bleached sulfate pulp to produce bond writing paper and a system for passing effluent gasses through chlorine wash water for odor abatement.

Generally, the IBM 1710 process receives signals direct from instrumentation; it is applicable to manufacturing quality control, industrial process study, and process optimization; monitors products in final test to maintain quality control; accumulates data from analog signals with which to build mathematical models; furnishes guides for operator control of the process and uses the standard 1620 programming and operating procedures to compile this data.

V. V. Vallandigham, Potlatch vice-president for pulp, paper and converting, said he expected Potlatch to realize many advantages from its new process control project. He listed the advantages as better quality control, a time reduction for grade change, a sharp anticipated drop in off-grade, greater product uniformity, a method of recording successful machine settings for possible future use and more direct control of the entire process by the machine crew. ■

THESE AREAS will be monitored by the new control system as well as many other points along the machine and the finishing area. At right, V.P. V. V. Vallandigham and prod. mgr. D. T. Keller study headbox and Fourdrinier position where controls will operate. Below, Mr. Vallandigham, Mr. Keller and mgr. of converting P. N. Halgren, discuss the computer application at the dry end of machine.



Another step toward more automated quality . . .

Potlatch Forests expects to realize many advantages from the project aside from the fact that the 1710 will collect large amounts of data for future use and application. Some of these advantages follow:

1. The 1710 should reduce grade change time by permitting the operator to regulate specifications more quickly from raw fiber to finished paperboard.

2. The same information in the hands of the operator on an instantaneous basis should permit him to reduce sharply the quantity of off-grade runs.

3. The 1710, through its constant production of visible records virtually from within the heart of the machine, will act as something akin to an information retrieval system, providing a complete record of past success or past failure. The first can be duplicated on command by quick reference to the records and the second can be avoided when the operator sees the same set of circumstances arising once again. In the latter case, the 1710 will recommend proper corrective settings.

4. For the first time, management will have access to a complete and detailed record of a day's production. Such monitoring of operations on a nearly real-time basis will permit a high degree of what is popularly termed, "management by exception."

5. Potlatch Forests is hopeful the 1710 will permit the operator to closely relate refining tolerance to drainage rates and achieve a better and more uniform distribution of fibers.

6. Machine production speeds can be maximized.

7. Moisture content can be controlled closely. Aside from its obvious competitive advantages such control should reduce breaks, and assure more continuous production from one end of the machine to the other.

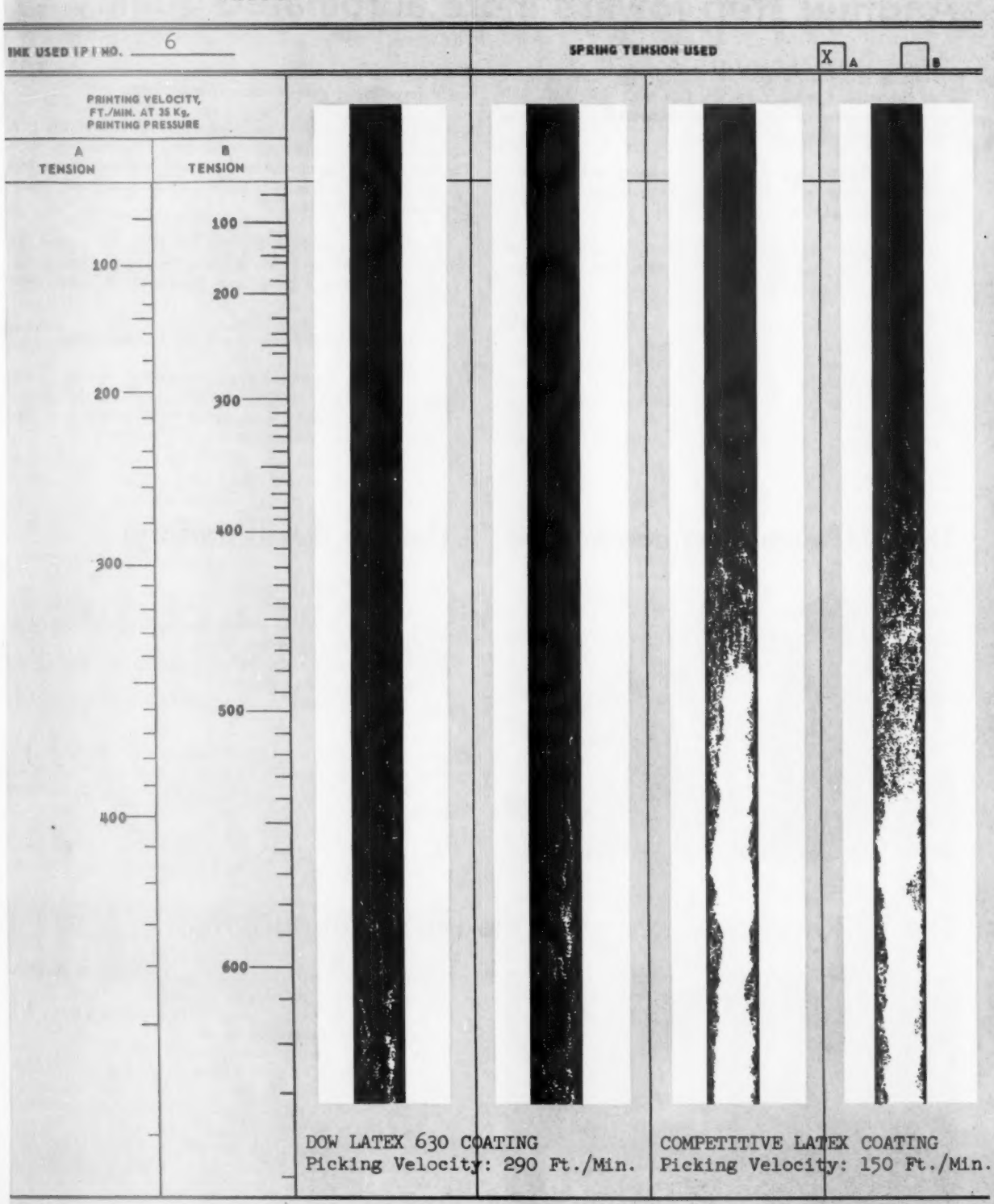
The 1711 computer component . . . the job it will perform

Scans up to 300 points.
Has minimum scanning speed of five points per second.
Sequentially scans all points; can be interrupted to scan earlier points more frequently.
Computes other data during scanning and converting from analog to digital.
Contains operator's panel for manual control and data entry.

The 1620 processing unit . . . the job it will perform.

Simultaneous reading, computing, and punching while performing input/output operations.
Large capacity core storage—up to 60,000 digits.
High internal processing speeds.
Operation at 20-microsecond cycle rate.
1,780 additions or subtractions (5 digits) per second.
200 multiplications (5 digits by 5 digits) per second.
56 divisions (5-position quotient) with direct divide feature per second.
5,000 logical decisions per second.
Data transmission of 2-digit fields; 4,160 per second.

VELOCITY CHART FOR IGT PRINTABILITY TESTER



PROVEN commercially... greater pick resistance with DOW LATEX 630

The velocity chart, left, for IGT Printability Tester provides proof of the greatly superior pick resistance of new Dow Latex 630. Here, laboratory test data are reported on the relative printability of commercially coated papers.

The two strips on the right coated with a competitive latex represent the performance of the "standard" grade. The two strips on the left represent the performance of that grade with Dow Latex 630 replacing the competitive latex in the coating.

In this test, Number 6 ink was used, and "A" spring tension. The test strips show that average pick velocity of strips with the competitive latex coating was 150 ft. per minute. But strips coated with Dow Latex 630 showed an average pick velocity of 290 ft. per minute . . . also note the reduction in bodystock splitting and the "blacker" black of the ink with the Dow Latex 630 coating.

In addition to greater pick resistance, Dow Latex 630 offers exceptional starch compatibility, excellent mechanical stability, and other outstanding advantages. Together, they spell superior printability . . . paper that permits clear, sharp, true-to-life reproduction with a minimum of problems for the pressman. Type reproduction stands out sharp and clear, too, because coatings made with Dow Latex 630 produce a more uniformly smooth printing surface.

Find out how Dow Latex 630 can help you to produce better paper . . . and boost your sales. For detailed information, write today to THE DOW CHEMICAL COMPANY, Midland, Michigan, Coatings Sales Department 1931JJ4-29.

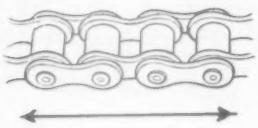
Write for a free copy of this informative booklet on new Dow Latex 630. It contains valuable data and information on how you can improve the performance of your coated papers.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

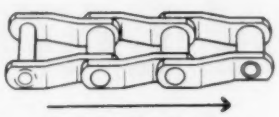
Problem: How to stretch the life of chains and chain belts

With proper care, chain links and belts, which can be an extremely high cost item throughout the mill, can be extended far beyond normal life. The secret is in correct preventive maintenance. Chain Belt Co. has provided some useful tips on chain care. These, however, go beyond just normal maintenance tips. Included is advice on proper chain installation which can also be an important factor in extending the life of your chains.

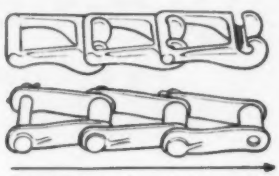
1. Proper direction of chain travel



Straight side plate chain travels in either direction



Offset Chabelco with rollers travels closed end forward



Detachable, pintle and H-type chains travel with barrel forward

It is important that chains with offset side bars be operated in the proper direction to assure maximum wear life of both chain and sprockets. Following these recommendations will result in low wear rate on pin bearing surfaces, prolonging chain wear life, as well as resulting in low wear on sprocket teeth.

Standard roller chains and double-pitch roller chains, both chains of straight link plate construction, perform equally well in either direction. Offset Chabelco drive chains with rollers should always be operated with the closed end of the link forward.

The proper direction for other drive types is similar. Detachable, pintle and H-type chains on conventional speed reduction or 1:1 ratio drives should be operated with barrel forward. Only for special speed-up or long center drives, should these chains be operated with open end forward.

2. Prevention of worn sprockets

Chains cannot be efficient or durable if used with worn or faulty sprockets. It is, therefore, important to inspect sprockets regularly for wear and alignment.

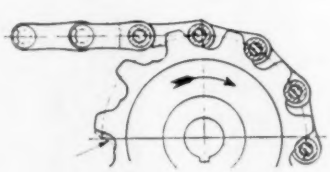
1. First of all, chains and sprockets must mate, with each having exactly the same pitch.

2. Be sure shafts are set parallel and level in rigidly supported bearings.

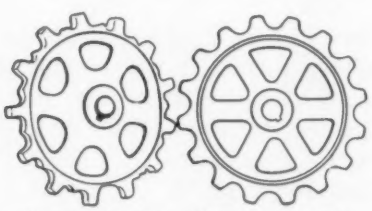
3. Sprockets must be mounted squarely and securely on their shafts.

4. Never run new chain over sprockets with worn or "hooked" teeth. This practice reduces chain life very rapidly by increasing internal chain loads. Excess wear and even breakage results.

5. Never run badly worn chain on new sprockets. In this case the sprocket pitch is shorter than the chain pitch, and correspondingly just as worn sprockets hurt good chains, worn chain will cause premature wear and reduce wear life of new sprockets.



Sprocket tooth wear



Worn sprocket teeth Unworn sprocket teeth

6. If not too badly worn, sprockets can be reversed on the shaft, using the unworn tooth surfaces. This is practical, since sprocket teeth are symmetrically designed. However, it is recommended caution be used in reversing sprockets on high-speed drives. Do not reverse when the back sides of teeth show any signs of wear.

Note: It is usually desirable that the smaller sprocket of the drive be one with hard surface teeth for longer life. Also, hardened teeth are recommended when the drive is operating over 600 rpm, when the driver sprocket has less than 24 teeth and the drive has a greater than 4:1 ratio, or when abrasive conditions are present.

3. How to clean chain—on and off sprockets

Periodic cleaning to remove caked lubricants, trapped dirt and grit will add substantially to sprocket and chain life. For best results, clean by removing chain and washing it and sprockets in a suitable cleaning solution. If removal is impractical, use a swab or brush, or brush dry. Drain off cleaning fluid and allow adequate time for evaporation. Or steam clean.

When cleaning, always check chain and sprockets for signs of wear and corrosion. Cleaning frequency will depend on service conditions. After cleaning, always relubricate thoroughly.

Photographs for PULP & PAPER by E. M. Morgan Sr.

By air, planting machine, even horseback . . . 90,000 acres were forested in 3 years on The *FABULOUS* James Project

By ED KERR
Assistant Director
Louisiana Forestry Assn.

A WEARY FLAGMAN stood long after the wind had died down on Central Louisiana's cutover prairie. Suddenly a light plane swooped in and released a spray of pine seed one mile long and 66 feet wide in a path leading straight for him, then zoomed up again and disappeared toward the airport, waving to a group of men in khakis standing nearby.

The man was Don Burkhalter, forest manager for T. L. James & Co., Inc., who had just put the cap on a 90,000-acre reforestation project near Alexandria that was accomplished in three years! To do it, he had to use practically every method of reforestation known: Some seedling planting, but mostly direct-seeding—by airplanes and helicopters, by planting machines, by hand and (in an experiment) by horseback.

The hardest part was yet to come: Waiting for the results, which only time would reveal. But the important fact was that the largest direct-seeding project in the nation was completed with almost stop-watch timing, pointing the way for forest landowners of the nation to green up their 52 million acres of cutover lands years ahead of schedule.

What made such a project possible? In the final analysis, of course, it was the determination of one man, backed by a progressive board of directors. But hundreds of Louisiana forestry leaders had their hands on Burkhalter's shoulder during those three years. In the first place, the project would have been impossible were it not for two events which took place almost simultaneously in 1954.

The famous Forest Taxation Law was passed by the Louisiana legislature in the summer of 1954 and approved as a constitutional amendment by the people that fall. Such a law didn't "just happen" but required a lot of groundwork by hundreds of dedicated leaders of the Louisiana

PROJECT RAMRODS on the James plan are J. H. Kitchens, Jr., formerly exec. dir. of the Louisiana Forestry Assn., and H. D. Don Burkhalter, head of the project.

AERIAL SEEDING was used on part of project, also two-row planter for "touch up" work

Forestry Association for more than seven years. It took months of research and hundreds of meetings with assessors, county leaders and foresters. And it took thousands of contacts with legislators, but it was worth it.

The law is a model for the nation, designed to encourage reforestation of idle acres by postponing taxes on timber until time of harvest. (It should be noted that ad valorem taxes on the land itself were not affected by this law and no existing taxes were reduced. The ad valorem taxes are provided according to four classes of timberland productivity.) Prior to this, landowners who reforested were penalized because their taxes grew as fast as their timber or faster. With the new law, a landowner could be reasonably sure of his future tax load and thus compute his payoff time with some degree of accuracy.

Some 2,500,000 acres of cutovers in central Louisiana slowly developed green spots here and there during the next four years. One company seeded 16,000 acres by mechanical seeders. Another filled in 700 acres, mostly by air, and other companies experimented with tracts of 500 and 1000 acres in order to learn more about the new-found process. All in all, 50,000 acres were reforested. Then along came Burkhalter.

The 49-year-old forestry leader was born in Texas, had been living in Louisiana since he was nine years old. At the age of 14 he was roustabouting in the north Louisiana oil fields with his father and, in time, worked his way through Louisiana Tech. He gained experience in forestry from 1935 to 1946, working up from a junior soil conservationist to district conservationist with the Soil Conservation Service, then resigned to accept a very interesting challenge. How he succeeded—and made his stake while so doing—is well-known around southwest Louisiana.

"All the merchantable timber" on a vast 57,000-acre tract in southwest Louisiana had been purchased by several timber companies prior to 1945. Due to extreme terrain difficulties, none had been able to complete the cutting contract within the 5-year time limitation specified in the contract. As a result, the owners of the tract retained ownership of a large percentage of the timber to be sold again.

Then the Lincoln Creosoting Co., a division of T. L. James & Co., bought the timber to be removed over a five-year period and hired Burkhalter to supervise the cutting and selling on a profit-sharing basis. Organizing the job as it never had been done before, he bought an airplane and learned to fly so he could follow up on all logging operations every day. Although it led to a subsequent heart attack, he cut all the timber and gave the tract back to the owner in two years!

He attributed his accomplishment to "not being handicapped by experience."

When T. L. James & Co., Inc. of Ruston, primarily engaged in heavy construction and oil, decided to broaden its base of operation in 1952, Burkhalter was hired as forest manager with orders to extend the company's forestry operation beyond their 19,000-acre holdings (In 1955, he was elected to the board of directors).

From the first he had a double-barreled problem. Not only did he have to worry about the rigors of reforesting vast tracts of land but he first had to get hold of the tracts! By 1953 he had acquired 24,000 acres of forestland in various stages of growth, then went after the big one.

Virgin longleaf timber on lands of the J. A. Bentley Estate had slowly but surely been whittled away since the turn of the century. Except in rare cases, none had grown back naturally and no artificial reforestation had been tried on any of the 92,000 acres. Because the end of the cutting came into sight by 1953, Burkhalter felt that the heirs would be ready for a proposition and began the task of negotiating for the tract. It took four years of conferences, alterations in wording, long distance telephone calls and at least 10,000 miles of travel before he won out over competing buyers and consummated a satisfactory lease.

With that behind him, Burkhalter began worrying about the reforestation job ahead and took stock of various routes open to him. On the vast, open sections, he knew the answer was direct-seeding, which was tailor-made to his problem. For the areas difficult to seed he could plant seedlings grown either by the state nursery or his own facilities. But, whatever he did, he knew it had to be done fast. Even if the land were reforested in one year, he could expect little return on his investment for at least 12 years, or as he put it, every year that an acre lay idle, it means money in the bank but not his bank!

So he immediately started planting seedlings from his own four-million-tree nursery, in addition to direct-seeding 1200 acres of loblolly. Comparing the costs of the two methods after the first year, he lost no time in abandoning his tree nursery and putting all his chips on direct-seeding. Not only was direct-seeding half as expensive as tree planting, but it was much faster!

PLANTERS were easily disc-equipped

14,320 acres direct-seeded by air was accomplished in the winter and spring of 1958-59, as well as furrow-seeding of 1865 acres of loblolly pine. In early December of 1958, he also direct-seeded 2360 acres of longleaf by air.

In one day, the helicopter reforested 2700 acres in six hours—a job it would take 270 tree-planting machines to do if the acreage were planted to seedlings. And, in addition to saving time, it presented a very colorful spectacle. Flagmen stood on the ground as markers for the plane, which swooped so low that flagmen dove for the ground on every pass. After the 'copter passed, the flagmen moved over 90 feet and got ready for the next pass. With this system, the seed fell over the entire area, since the seed scattered in a band about 100 feet wide.

Seed hoppers were fixed on sides of the 'copter, resembling holsters on the hip. The hoppers fed the seed to a slinger—located at the bottom of the ship—which whirled at 1700 revolutions per minute, scattering the seed about 50 feet to either side. The pilot had absolute control over the hopper valves at all times, using a trigger on his control stick to turn the valves on and off.

Burkhalter soon found that furrow-seeding was even cheaper than aerial seeding (mostly because of the saving in seed cost) and saw prosepcts of cutting his reforestation cost in half again. Consequently, he decided to go heavier on machine-seeding the next year, seeding roughly 20,000 acres by air and the same amount by machines.

After experimenting with different variations of seed planters and devising innovations to fit the terrain, James foresters and the Rome Plow Co. came up with a planter towed from a light crawler tractor that plants two rows of seed, disks and packs the soil in one operation.

The two planters are mounted at either end of a tool bar connected to the tractor with a three-point hitch. Offset disk gangs, which turn over the sod and prepare the seed bed, are followed by a packing wheel which firms the seedbed and activates hoppers situated above. One pine seed is dropped each linear foot behind the packing wheel and is pressed to the mineral soil by a second packing wheel.

The company used variations of this machine, depending upon the terrain. The rear packing wheel was removed on wet sites, for instance, and a heavy roller replaced the discs on sites for fill-in work.

Burkhalter has definite ideas of how he wants to manage the 90,000 acres, once it starts producing trees. In fact, he is following the plan originally set up on the 9000-acre tract in south Louisiana, which was divided into 35 subdivisions of approximately 240 acres each. Working toward a system of even-age management, he clear-cut one 240-acre subdivision each year and reseeded it immediately by artificial means to gain rotation control.

Virtually the same policies will apply to the Bentley tract, with the acreage divided into 35 subdivisions (for a 35-year rotation) of approximately 2500 acres apiece. Each subdivision will be thinned as needed but one will be clearcut and replanted each year after the thinning stage has been reached.

The thinning guide criterion on any one block or subdivision is pre-determined by the site index for maintaining a 5-year cutting cycle which he insists is desirable in Louisiana for obtaining maximum production from the land.

"I don't want any naturally reforested trees," he says. "I want the trees to grow in certain places and I can't manage dominant trees, co-dominant trees and reproduction at the same time. Nobody can."

But in Louisiana—especially in central Louisiana—the reforestation and forest management problems are not the only headaches to a landowner. The James company is faced with the monumental task of changing a vast area's way of life in precious little time. Accustomed to running wild hogs, open-range cattle, goats and sheep and setting fires for the better part of a century on "a land that the world forgot," settlers learn slowly the advantages of a timber economy.

To offset this, Burkhalter has initiated an intensive "neighbor relations" program that exemplifies the multiple-use concept of forest management. A 60-acre community lake has been constructed to relieve the acute shortage of recreation facilities in one area and a 40-acre school forest program has been undertaken. One high school has already received a forest and the company has announced its intention of donating similar tracts to other high schools within the vicinity of company lands.

GOOD RELATIONS with public was integral part of plan, called for constantly informing "neighbors."

Not one acre of land is posted by the James company; rather, "Welcome Hunter" signs appear throughout the property. When the tree nursery was shut down in Ruston, it became a nursery for growing wildlife food-and-cover plants to be outplanted on company firebreaks and other openings.

"Thanks to the efforts of the Alexandria Research Center," he said, "we know that cattle and trees can live together in this area and we intend to cooperate with cattle owners to the fullest so that both forest and cattle industries will prosper. In return we are asking them to help us keep hogs, goats and sheep off our pine plantations."

When jobs need to be done, local people in the area are chosen to do them. Already the transfusion of paychecks for the reforestation and pulpwood logging jobs has perked up the area's economy, with 360 persons being employed on company lands at one time or another last year.

Some of the people already seem to sense that, once the land is reforested, it will establish a healthy and stable economy over the entire section for the first time in history. Several disposed of their hogs immediately upon request by the company and some others thanked the company for rounding up their hogs for them. The forest fire situation has been little short of amazing, in view of the fact that the area had had one of the worst fire records in the United States prior to 1957. During the past year, only two fires were deliberately set on company lands.

Bill Mann, officer-in-charge of the Alexandria center, estimated the saving by direct-seeding the Bentley acreage, rather than planting it to seedlings in the conventional manner, will run in the neighborhood of a million dollars.

"Economic advantages go further than direct costs per acre," Mann said in a recent address before the Society of American Foresters. "Capital outlay is also important to the forest manager. To plant even 18 million seedlings in a single year would require 18 tractor-planting units costing about $100,000. Added to this would be the cost of at least six trucks to bring seedlings from the nursery to the field, haul parts for equipment repair, and carry crews to and from the job. In contrast, the capital outlay for seeding would be about $30,000 for four crawler tractors, four disks, two trucks and a cold-storage room.

"Another decided advantage in favor of seeding was the smaller labor force and consequently the simpler supervisory problems. Planting 18,000 acres in a year would necessitate constant inspection by a team of foresters winterlong. Shifting of operations would be a repeated problem as sites became too wet for machines to operate. In contrast, aerial seeding progresses systematically at the rate of 2000-3000 acres daily."

Mil-acre plots show that the overall stocking for the three-year project amounts to 1980 seedlings per acre with 60% of the mil-acres having one or more seedlings.

"We've got some holes in the scenery, of course, that will be filled in during the next year, but the important thing is that we now have a stand of timber. A new forest is on the way."

But that's where his jubilation ends. Satisfied that he accomplished the feat as cheaply as possible at the time, he says "I could have saved my company a considerable sum of money had suitable tree seeding equipment been available when the seeding project was undertaken. Too, excessively dense stands would have been eliminated, with all trees being planted in rows, thus eliminating the need for a precommercial thinning.

"Perhaps of more importance, row planting would permit the use of mechanical harvesting equipment (which his company has on the drawing boards of development in 1961). We will again abandon tradition in harvesting our timber."

But even more important, he says, is the necessity of getting the land into production. "No landowner can afford the luxury of having barren land on his hands," he said. "We figure that idle land is costing us money every year and reforested land is making us money. It's that simple." ■

New Canadian legislation aid to pulpwooders

VANCOUVER, B. C.—Security of pulpwood supply will be guaranteed to mills that may be established in the interior of the province as a result of legislation dealt with in the British Columbia legislature this spring.

The forest service maintains that there are several locations for pulp mills, to be supplied wholly by wood residue from adjacent sawmills, but that the pulp mills would be at the mercy of the lumber industry if the latter were shut down by some cause.

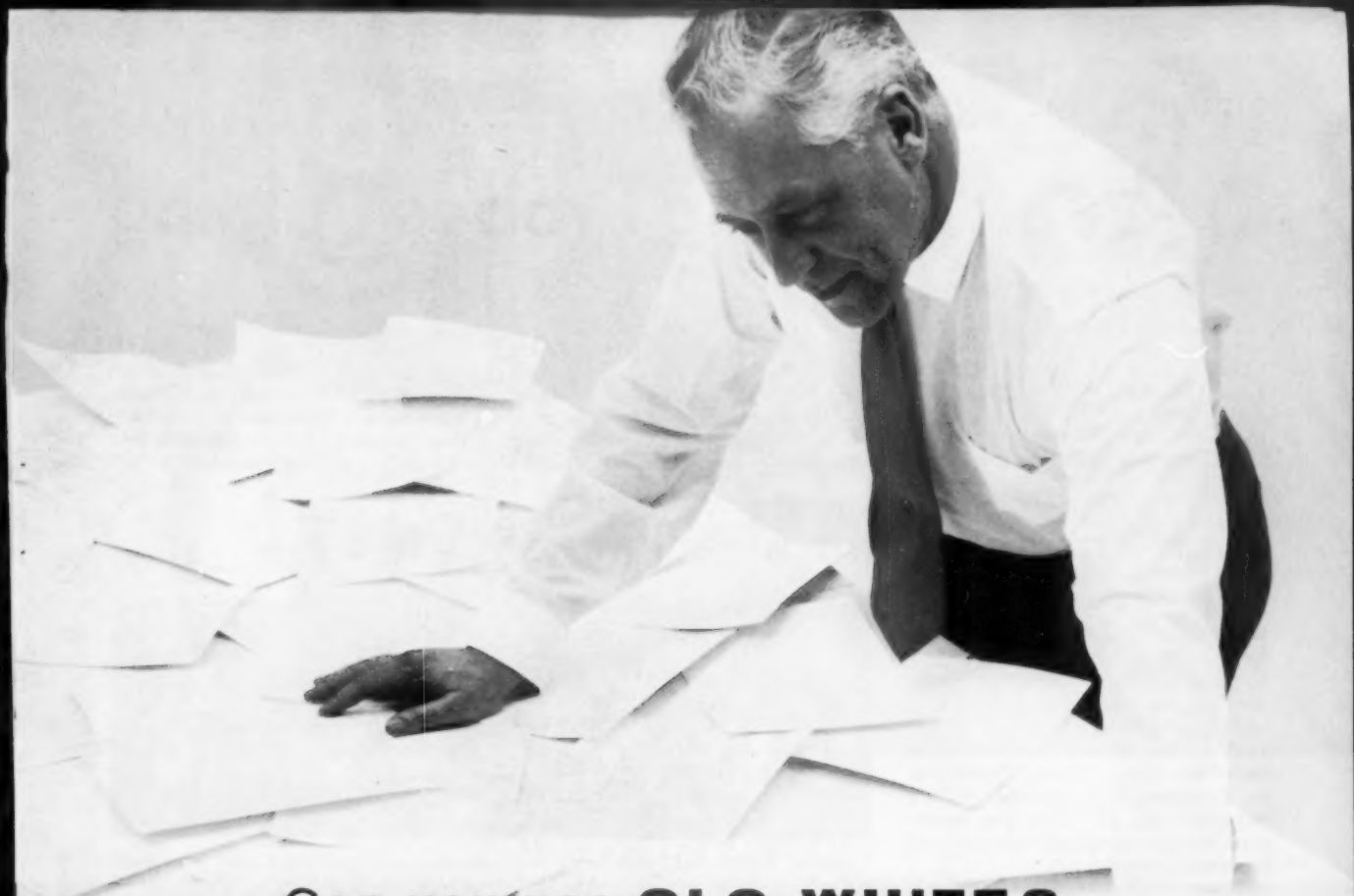
The new legislation will give pulp mills priority on pulpwood harvested in sustained yield areas after established operators have logged the saw timber and in the event of sawmill shutdown the pulp mill would have power to take out the pulpwood by some alternative means. ■

Wet pulp, green veneer in plywood panels

PORTLAND, ORE.—Multiple achievements in wood-products manufacturing are reported by Georgia-Pacific Corp. in conjunction with its new plywood plant now inaugurating production at Springfield, Ore.

According to R. B. Pamplin, G-P president, both revolutionary processes and materials are utilized to produce a new type plywood panel. Production reportedly involves using resin-impregnated kraft pulp in wet form for front and back surfaces of the panel, three layers of green veneer and dry glue (presumably in sheet form) for inter-face bonding.

The panel components are laid up in this form then placed in a 60-opening hot press—reportedly the world's largest—where they are unified, dried and finish-surfaced in one operation.



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Tri-Way Meeting Probes Pulping

By L. H. BLACKERBY, Western Editor

HARRISON HOT SPRINGS, B.C.—The international Tri-Way meeting of Pacific Coast branches of CPPA, PIMA and TAPPI held here this month set new highs in participation. Net registration was 650, much above the 500 originally anticipated. The total might have been higher had housing been available; some registrants actually billeted in Vancouver some 70 miles away.

The technical program featured outstanding presentations on chlorine dioxide bleaching and semi-automatic stock systems; covered processing and equipment developments, maintenance and production efficiencies. Next combined meeting of these groups in B.C. is slated for 1964 in Vancouver.

High strength with bleaching shown

Under optimum conditions kraft pulp can be bleached to 90 brightness level with resultant strengths 10% above those of the unbleached pulp. This was reported by D. D. Hinrichs, research chemist, concerning studies made by Central Research Div. Crown Zellerbach Corp., Camas, Washington to determine (1) optimum bleach sequence and (2) bleaching conditions for chlorine dioxide bleaching of western kraft pulps.

The CEDED (C-chlorination, E-caustic extraction, H-hypochlorite, D-chlorine dioxide. Crown's CRD studies include bleach sequences CEH, CED, CEHD, CEHHD, CEHDH, CEHED, and CEDED) sequence was found best, giving a high quality 90 GERS. brightness pulp with 0.9% total chlorine dioxide consumption. This bleached pulp has superior viscosity, strength, and brightness reversion characteristics. Reduction of chlorinated and extracted permanganate number to about 4.0 was necessary for efficient bleaching via this sequence. Nearly as good 90 brightness pulp was produced at lower cost by the CEHED sequence with 0.35% chlorine dioxide usage. It was found necessary to have a permanganate number of 4.0 to 4.5 after chlorination and extraction to achieve these results. A 70-75 brightness pulp from the hypochlorite stage was required for reasonable bleaching cost with the CEHED sequence.

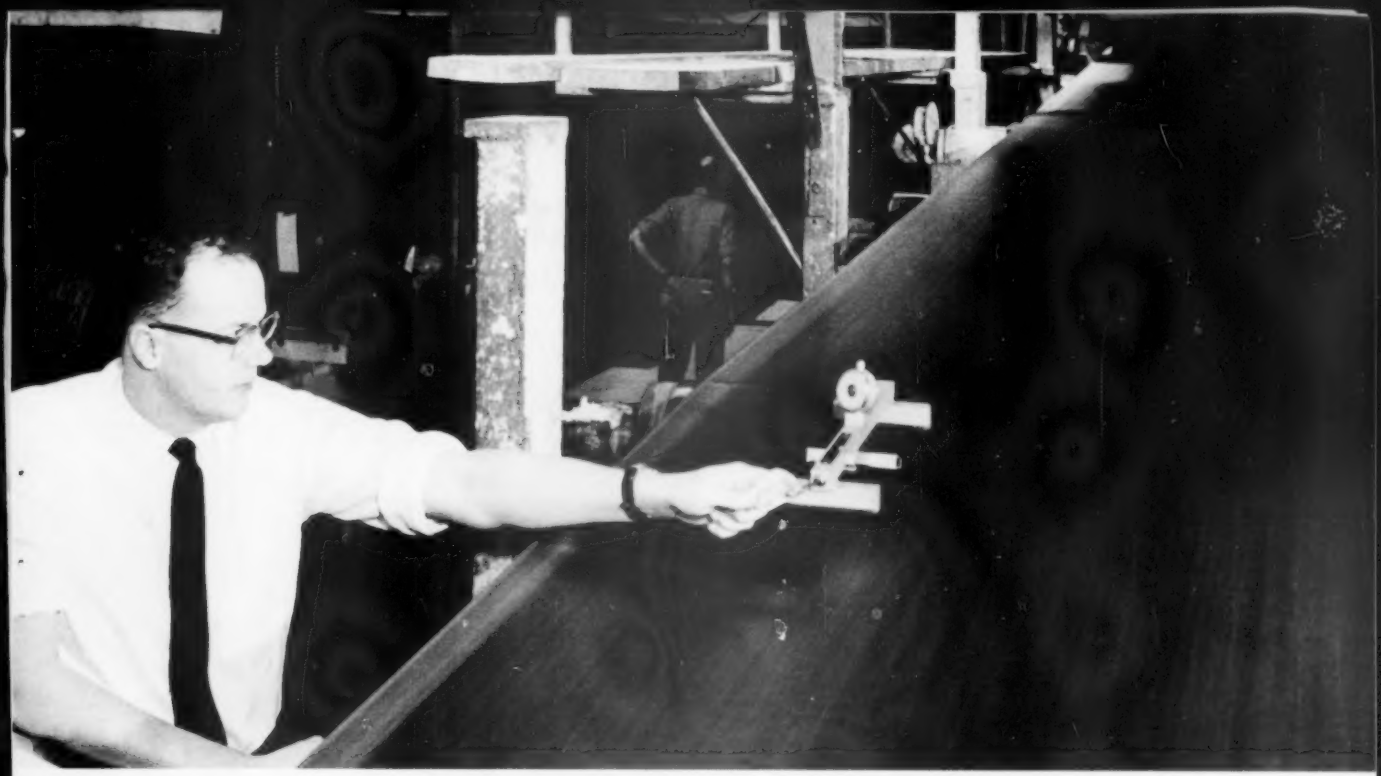
Other bleach sequences were less satisfactory Mr. Hinrichs said. Bleaching to the 90 brightness level under optimum conditions gave bleach pulp strength 10% above unbleached pulp strength.

Brightness reversion was decreased by using a second caustic extraction stage, by increasing the pH of hypochlorite bleaching and by doing more of the total bleaching with chlorine

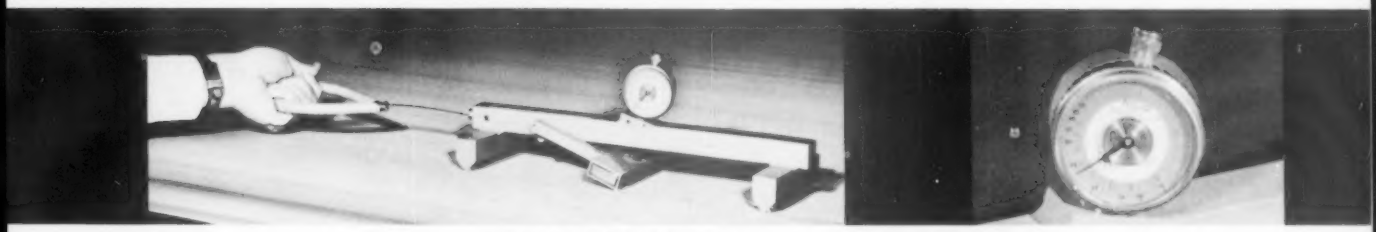
PACIFIC TECH. SECTION CPPA (host organization): From left, Chmn. **John Bardsley**, B. C. Forest Products Ltd., Crofton, convention co-chairman. Officers elected for ensuing year: Chmn. **E. T. Barnes**, Elk Falls Co. Ltd., Campbell River, B. C.; 1st Vice Chmn. **Louis T. Bock**, Rayonier Canada Ltd., Vancouver; Secy.-Treas. **John J. McLaughlin**, Hooker Chemicals Ltd., N. Vancouver; 2nd Vice Chmn. **William Halliwell**, Columbia Cellulose Co., Prince Rupert, B.C.

PACIFIC COAST PIMA: From left, Chmn. **Louis W. Pumphrey**, Westminster Paper Co. Ltd., New Westminster, B.C., convention co-chairman; 1st Vice Chmn. **A. Hugh Wickett**, Weyerhaeuser Co., Longview, Wash.; 2nd Vice Chmn. **Hardie J. Forkner**, Inland Empire Paper Co., Millwood, Wash.; 3rd Vice Chmn. **Henry M. Stoltz**, R-W Paper Co., Longview; Secy.-Treas. **J. M. Wilcox**, Esco Corp., Portland, Ore.; **L. H. Peterson**, Morningstar Paisley Co., Portland, industrial affiliate for coming year.

PACIFIC SECTION TAPPI: From left, retiring Chmn. **P. T. Dickie**, Crown Zellerbach Corp., West Linn, Ore., co-chairman of convention. Newly elected officers: Chmn. **Curt Walseth**, Weyerhaeuser Co., Cosmopolis, Wash.; Vice Chmn. **Lyle J. Gordon**, Scott Paper Co., Everett, Wash.; Secy-Treas. **Robert H. Symthe**, Ray Smythe Co., Portland; **C. W. Davidson**, Crown Zellerbach Camas Div., exec. committeeman.



Take a number...



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dioxide, less with hypochlorite. Best bleaching results were obtained with chlorine dioxide stage conditions of 160° F. 5-hour retention time, and dump pH 3.0. The addition of sodium hydroxide was frequently required to maintain this dump pH. Dirt removal was much better with chlorine dioxide bleaching than with hypochlorite.

Quality of bleached pulp is related to its unbleached quality. If a kraft pulp is cooked too soft, it may be so seriously degraded that it is not possible to make a strong bleached pulp from it. The unbleached pulp viscosity decreased sharply as the permanganate number was lowered by more drastic cooking conditions. With western woods, it appears desirable to maintain an unbleached permanganate number of 25-30.

According to Mr. Hinrichs the CEDED brightness stability was the best of any sequence studied—less than 50% the reversion of some sequences. Viscosity was also the best, remaining constant at a high level up to 91 brightness. Bleaching cost, slightly over $13 per ton, was about the same as for CEHD or CEHDH at 90 brightness. However CEDED was less expensive than CEHD or CEHDH at brightness levels above 90 but more expensive at brightness levels below 90. The CEDED produced the highest quality bleached pulp obtained in the study. However, bleaching costs were higher than for the CEHED or CEHHD sequences.

What new studies reveal about ClO_2 costs

Recent trends in chlorine dioxide generation reveal opportunities for lower costs in this area. J. F. Serafin, tech. service dept. of Electric Reduction Co. of Canada, North Vancouver, B.C., indicated this in reporting on comparison studies of two generation systems—ER-2 (called H-2 in U.S.) and Mathieson processes.

In kraft mills where credit may be obtained for effluent other than sulfuric acid, costs for the ER-2 process are about 1.3¢/lb. chlorine dioxide higher than the Mathieson. This cost is based on average Canadian Pacific Coast chemical prices as applied to Mathieson units operating at 90% yield of ClO_2 on sodium chlorate. But many mills, according to Mr. Serafin, operate at less than 90% efficiency. "In such mills the ER-2 process may be economically attractive. Particularly so where the effluent acid may be credited for some addition use in the mill."

Chlorine dioxide for Canadian mills is largely generated by the Mathieson process, reducing sodium chlorate by means of sulfur dioxide in presence of large excess of sulfuric acid. The ER-2 process uses sodium chloride instead of sulfur dioxide.

The ER-2 process eliminates the need for multiple generation stages for increased production as well as equipment for handling sulfur dioxide.

Extensive pilot plant studies, according to Mr. Serafin, have shown it is possible to obtain 10 times the normal Mathieson production of ClO_2 at 95-96% yields from a simple one-stage generator by the newer process. These results have been substantiated by mill trials at U.S. and Canadian pulp plants.

The ER-2 plant differs from the Mathieson installation in that it (1) eliminates the entire SO_2 system, (2) has single small-size generating unit, (3) eliminates ClO_2 gas scrubber, (4) requires substantially less piping and control valves.

ER-2 offers the most simple type of operation, but unless full use can be made of the effluent it has higher chemical cost than does the Mathieson process.

New maintenance control project detailed

Of industry's several expense factors, maintenance offers one of the best opportunities for effecting cost reduction. A modern method by which potential maintenance projects are evaluated to control costs was reported by Donald G. Felthous, plant engr. of Pulp & Paperboard Div. of Weyerhaeuser Co., Longview, Wash. The system adopted at this plant last Jan. 1 classifies all maintenance jobs. The plan involves methods by which maintenance jobs, other than those absolutely essential to continued production, receive consideration and dollar evaluation before being approved.

Maintenance is now classified under nine headings: Operating, routine, equipment relocation, improvements, capital job expense, emergency repairs, safety, trial basis, other repairs. All but one ("operating maintenance"—which can be performed unaided by a shift mechanic and involves not over $10 store material) require work orders.

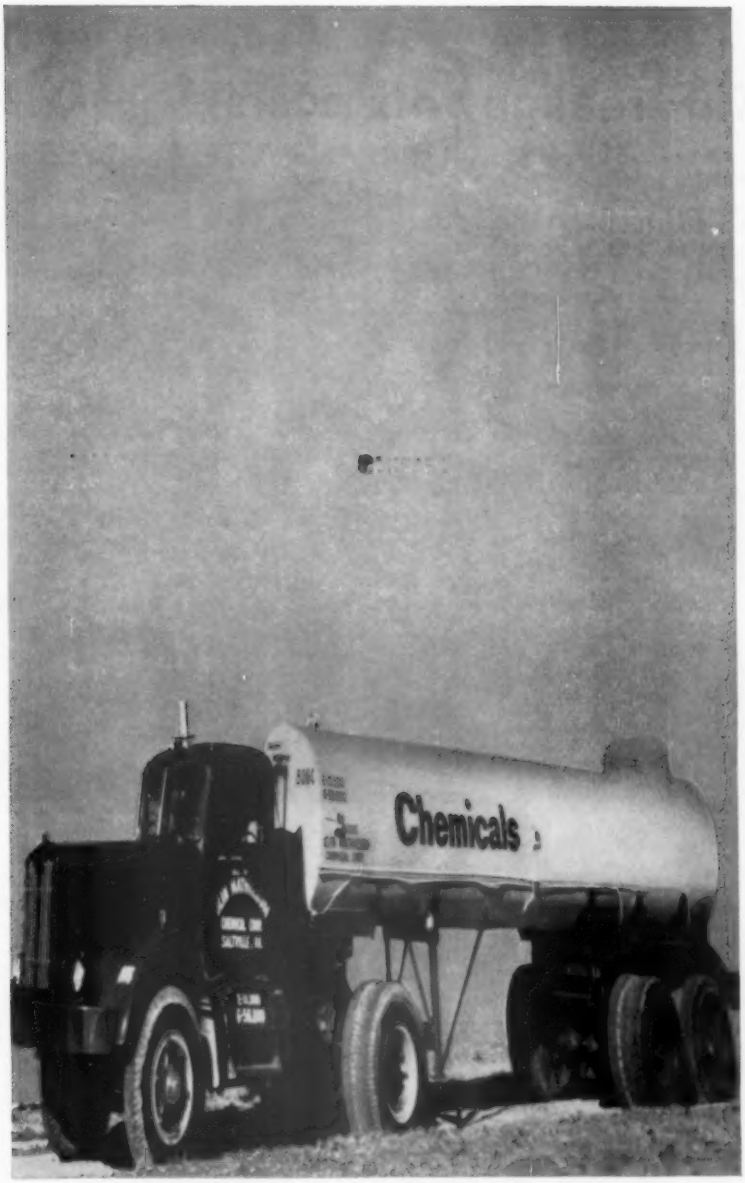
Any mill employe can make out a request for work orders. These first go to the shift supt. then to the dept. supt. for review and classifying in one of the 9 categories. (First control.) The latter is responsible for expenditures in his dept. If he approves the request it goes to the work order clerk who segregates work orders by cost—under or over "X" dollars. Properly approved requests under $X are written up as work orders. (Second control.) Requests making the "over $X" category go to the estimator (member of engineering dept.) who makes detailed cost estimate. If this is under "Y" dollars (3 times $X), the work order request and cost estimate go back to the dept. supt. for approval or disapproval. (Third control.)

Job estimates over $Y require making out a "special maintenance appropriation request" (SMAR) describing work and reason for the request, cost information for accounting dept., and detailed cost estimates. This is signed by the requesting supt., project engr. or estimator, plant engr. or production mgr. of plant area concerned, the asst. plant mgr. and manager.

Except for the estimator each SMAR signer has a chance to question the proposed expenditure or make alternative recommendations. (Fourth and last local control.) Copies of SMAR go to accounting, engineering, and the manufacturing manager located at Tacoma headquarters office. In case the estimate is over "Z" dollars (3 times $Y) the whole SMAR goes to him for approval before a work order is issued.

Costs are collected on all completed maintenance jobs each month and published by category for information of personnel in maintenance, operating, engineering and managerial depts. Local mill management sets the figure of X, Y, Z dollar classification.

Although the system has operated but a short time, it is working quite smoothly and, according to Mr. Felthous, quite successfully. During the first 3 months of 1961 over 13% less work orders were written than during the same period in 1960. ■



Mathieson SQUEEZES your caustic delivery costs

How? Many ways. For example, in most areas, you can order 73% Mathieson caustic soda by truck. The benefits to you are obvious. This concentrated solution means fewer deliveries, less shipping weight, less transportation cost. And only Olin Mathieson offers you this convenient truck delivery.

More ways Mathieson squeezes delivery costs? Location. Mathieson has eight producing plants and shipping points (with a ninth under construction) covering the industrial South and East, with barge, rail or truck shipments to suit your needs.

Convenient truck scheduling: we time deliveries when you need them. Service: as you have a right to expect, it's part of company policy, backing every Mathieson chemical with technical assistance. For full details, write OLIN MATHIESON, Baltimore 3, Maryland.

Ammonia • Carbon Dioxide • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitric Acid • Soda Ash • Sodium Bicarbonate • Sodium Chlorate • Sodium Chlorite Products • Sodium Methylate • Sodium Nitrate • Sulfur (Processed) • Sulfuric Acid • Urea 8947

CHEMICALS DIVISION Olin

IP and CIP realign top posts

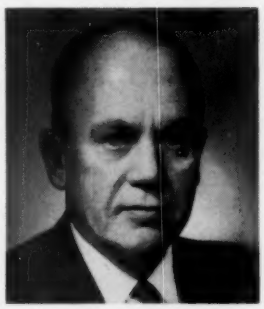
NEW YORK—After serving as executive vice president since 1959, Lamar M. Fearing has been elected president of International Paper Co. His move follows the designation of John H. Hinman as honorary chairman of the board and Richard C. Doane as chairman of the board.

At the same time Joseph P. Monge was elected vice president and treasurer.

Mr. Hinman, who joined IP in 1913 as woodlands manager in northern New Hampshire, was also appointed director of woodlands. Mr. Doane continues as chief executive officer.

Mr. Fearing joined the company in 1924 and most of his career has been associated with the company's sales and marketing activities. In 1953 he was named sales manager of the Fine Paper and Bleached Board Division and later assistant general sales manager in charge of sales of primary grades. In 1957 he was elected vice president and in 1959 executive vice president and at the same time was elected a member of the board of directors. He is also a director of Canadian International Paper Co.

In the April 3 issue of PULP & PAPER, Mr. Fearing authored the lead feature article, "Send Me a Man Who Reads. . .", which brought many inquiries to this magazine and attracted wide interest. The four-page article pointed out how a continuing research program by International Paper Co. has proved that "men who read more, achieve more." He gave many interesting glimpses into IP studies and reactions to an advertising campaign which emphasized this theme.



FEARING

J. H. HINMAN

DOANE

MONGE

JOHNSON

E. B. HINMAN

In Montreal, Vernon E. Johnson was elected chairman of the board, Canadian International Paper Co. E. B. Hinman succeeds him as president. Other CIP changes: I. H. Peck, president of International Paper Sales Co., Inc., becomes vice president and general manager, CIP. R. C. Neely succeeds him as president of IPS Co., the CIP newsprint sales subsidiary. F. L. Allen continues as executive vice president of CIP.

Mr. Hinman, at 47, takes over the top executive post in Canada's largest pulp-paper enterprise. He joined the company 25 years ago, direct from Harvard School of Business Administration. He started as a laborer at the Gatineau mill of CIP. By 1952 he had graduated through various echelons of mill work and was appointed mgr., Dalhousie newsprint mill in New Brunswick. ■

Mead promotes Henricks at Chillicothe

HENRICKS

DAYTON—Promotion of five management and production employes at The Mead Corp.'s Chillicothe Division and the retirement of E. B. Brundige as production manager were announced today by H. H. Wheeland, division manager.

Warren E. Henricks has been named assistant division manager; Mason Hinkle, production manager, paper machines; William Berthold, production manager, finishing, shipping, specialty products; John Carson, production manager, conversion coating; and Booker Bunch, production manager, pulping and chemicals.

Mr. Henricks previously was administrative assistant to Mr. Wheeland for more than a year. Mr. Henricks, a member of the first group of engineering trainees hired by the Corporation, joined Mead in 1947 immediately following graduation from the University of Illinois where he had received a B.S. degree in mechanical engineering.

At the completion of his training program, he was named assistant to the maintenance supervisor, and subsequently became assistant master mechanic. In 1950 he was promoted to assistant division engineer and six years later was named division engineer. ■

Mead centralizes purchasing operations

DAYTON, OHIO—Two new staff positions have been added by The Mead Corp. in its corporate purchasing dept. at Chillicothe, Ohio. Purpose: to augment a centralized program in the purchasing of materials and equipment used by Mead's widespread operating facilities.

R. A. Bissmeyer becomes corporate coordinator of purchasing and E. C. "Ted" Becker becomes corporate purchasing agent.

Mr. Bissmeyer joined Mead Containers in Cincinnati in 1958 as purchasing agent. He attended John Carroll and Miami Universities, received his b.s. in business administration from the latter.

Mr. Becker joined Mead in 1955 as purchasing trainee. Later he was assigned to the Chillicothe division and in 1959 he became purchasing assistant for Chillicothe Paper Co., a Mead subsidiary. ■

BISSMEYER

BECKER

Gehring, Geffken win key posts at Sealright

FULTON, N.Y.—C. Ives Gehring has been named manager of paperboard procurement and Durwood "Woody" B. Geffken succeeds Mr. Gehring as manager of the paper mill department of Sealright-Oswego Falls Corp. Both will be responsible directly to C. M. Tooke, executive vice president of the company.

Mr. Gehring joined Sealright-Oswego Falls as assistant chemist in 1931 a few days after graduating from New York State College of Forestry, Syracuse. He has advanced steadily with the firm and has been in charge of the company's pulp and paper division for the past nineteen years. He has become a prominent and influential paper maker.

Mr. Gehring is 1st vice president of the Paper Industry Management Association, and is slated to be its next president. He is a two-term past president and a director of the College of Forestry alumni association and a prominent member of TAPPI.

Mr. Geffken joined Sealright-Oswego Falls in 1949. He is a 1941 graduate of the pulp and paper department of the N.Y. State College of Forestry and also was distinguished as an undergraduate.

He served with the U.S. Marine Corps throughout the four years of

GEHRING

GEFFKEN

Westinghouse drives world's fastest kraft paper winder

Two Westinghouse 300-hp Life-Line H d-c motors and a Westinghouse 400-kw motor-generator drive this 7200-fpm winder, rated the world's fastest, for Union Bag-Camp's new #7 machine at Savannah. These drives assure uniform threading speed, smooth and rapid responses, simple and easy operation. Westinghouse features in these drives also reduce downtime to a minimum, improve accessibility and safety, simplify maintenance. For more details on this #7 machine, see the next page.

J-96162-1

Westinghouse

World War II in the Pacific area as a Marine Captain.

Prior to joining Sealright-Oswego Falls Mr. Geffken was a chemist for the Crown Zellerbach Corp. at Carthage, N.Y.; research chemist at Johns Manville, N.J., Research Center; and chief chemist of Empire Box Corp., Stroudsburg, Pa., and was general superintendent of the pulp and paper division of Sealright-Oswego Falls under Mr. Gehring since 1954. He is a past chairman of the Central District of the Empire State section of TAPPI and a member of PIMA. ■

Riegel names three division heads

NEW YORK—A major realignment of the operating divisions of Riegel Paper Corp. announced May 1 by John L. Riegel, chairman, and Frederick S. Leinbach, president.

A Flexible Packaging Division has been established with J. Hanes Lassiter, vice president, named general manager of the division. This division will handle the production and sale of converted flexible packaging materials, including papers, films, and foils.

A Paper Division has been set up to handle production and sale of merchant, industrial and converting papers, and G. Lamont Bidwell, Jr., vice president, has been named general manager.

Production and sale of folding cartons primarily for the food field, will be the responsibility of a new Folding Carton Division to be headed by Chalmers W. Barr, general manager.

LASSITER BIDWELL BARR

According to the company, there are no changes at the Pulp and Paperboard Division in North Carolina, or in the company's subsidiary, Bartelt Engineering Co.

Charles E. Schaehrer, vice president, has been advanced to assistant director of marketing. R. L. Kerridge continues as vice president and director of marketing for the corporation.

The appointments complete the realignment of operating divisions resulting from consolidation of companies acquired by Riegel last year ■

In new Continental division

NEW YORK—Dr. Keith W. Max assumes the newly-created position of director of research and development for the Containerboard and Kraft Paper Division of Continental Can Company. Dr. Max and his staff will be located in the company's new bleached board mill at Augusta, Georgia.

Prior to this appointment, Dr. Max was general manager of research and development for the firm's Robert Gair Paper Products group. He joined the pre-merger Robert Gair Company in 1943 as assistant technical director and held several technical positions before his last appointment.

MAX

Dr. Max holds the Master of Science and Doctor of Philosophy degrees from The Institute of Paper Chemistry in Appleton, Wisconsin. ■

STRICTLY PERSONAL . . .

Pacific

Ray Smythe, whose company represents Rice Barton and other suppliers in the Far West; **Bill Marshall,** of American Cyanamid, and **John Fulton,** vice president, Crown Zellerbach Corp., were voted life memberships recently in the International Brotherhood of Migratory Peddlers. They were charter members of the organization founded in Portland, Ore., some years ago to assist mill men in programming industry meetings.

L. W. Moore, who headed Crown Zellerbach Corp.'s consumer products sales div. for past 9 years, is promoted to asst. vice pres. in charge of the division . . . **Steve Pauley,** supt.-printing & napkin depts., Crown Z Camas Div., becomes asst. plant mgr. of CZ Canada's Richmond Div. at Vancouver, B.C. . . . **Lloyd L. Miller,** associated with Weyerhaeuser Co.'s Alameda shipping container operations since 1954, transfers to the company's San Francisco office as regional administrative assistant . . . **Henry C. Scott Jr.,** formerly with Union Bag-Camp Paper Corp., joins Southwest Forest Industries, Phoenix, Ariz., as sales mgr. for kraft products.

James G. Ramsey, paper machine supt. at Simpson Lee Paper Co., Everett, Wash., transfers to the firm's new Ripon, Calif., operations as personnel manager . . . **Ernest E. Bachart,** machinetender at Simpson Lee Paper Co.'s Everett plant since 1928, retires after 45 years service with the firm and its predecessor.

Charles D. Watrous, for past 6 years representing Stanley Steel Strapping in Wash. & Ore., is appointed West Coast regional mgr. of the firm and will headquarter in San Francisco. . . .

Floyd A. Simpson, Lakewood, Calif., formerly with Royal Container Co. and

Quaker Container Corp., becomes West Coast resident erector for S&S Corrugated Paper Machine Co. . . . **Beryle W. Wright,** formerly dist. engr., was named dist. sales mgr. of Chain Belt Co.'s Portland, Ore. region which includes Ore., Idaho, Mont., and portions of Wash. and California. He succeeds the late Rusty Church.

Warden W. Gano, civil engr. in Washington, D.C. office of U.S. Forest Service, transfers to Pac. NW regional office at Portland, Ore. in charge of engineering. He succeeds **R. F. Grefe** who retires from the position effective June 1 after working 35 yrs. in this region. . . .

Ratliff

Coma

F. C. Ratliff, tech. dir. at Crown Z Bogalusa, La., div., transfers to Camas, Wash., as mgr.—paper products development Central Research Div. **J. G. Coma,** assoc. engr. in chemical products div., becomes supervisor-chemical process research in Camas CRD.

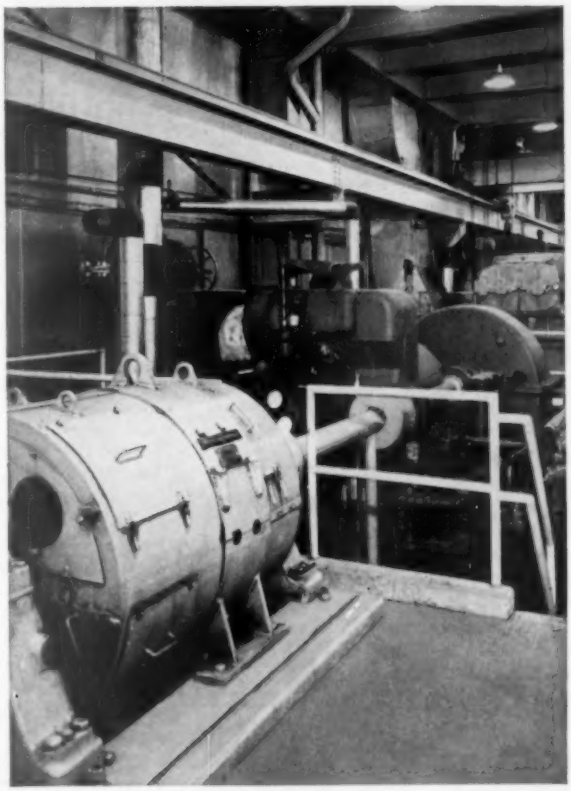
Midwest

Morton W. Johnson has been elected president, treasurer and general mgr., The Wheeler Roll Co., Inc. He was previously with KVP, Sutherland Paper Co., as supt. of maintenance.

Max D. Zauke recently was named assistant Chicago manager by the Hubinger Co., Keokuk, Ia. He has been a Hubinger sales-service representative in the Chicago area since 1956, serving industrial users of corn starches, syrups and syrup solids.

Talbot Peterson and **Willard C. Notbohm** have been elected vice presidents and **Raymond A. Bennett,** assistant sales manager, of Valley Iron Works Corp., subsidiary of Allis-Chalmers Mfg. Co. Mr. Peterson has been secretary of the company and retains that position. In addition he will be responsible for staff services and international operations of the company. Mr. Notbohm will retain

Westinghouse turbine drives world's fastest kraft paper machine



Union Bag-Camp's new #7 machine rated at 3000 fpm. Its line shaft is driven by a 3,000-hp Westinghouse steam turbine and reduction gear. This turbine is of the multi-stage, non-condensing type, operates at a normal 400 psi and 750°F., exhausting at 80 psi . . . and is controlled within ±0.1% of rated speed. Westinghouse design permits operation from maximum to zero speed on governor control and the operating speed range is always below first critical speed . . . factors which insure exceptional control, reliability and equipment life. For more details on Union Bag-Camp's new machine, see next page.

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Westinghouse

STRICTLY PERSONAL . . .

supervision of product development and be responsible for other technical services. Mr. Bennett will be second in command of Valley's domestic sales activities under Paul Boronow who is vice president and sales manager.

Allis-Chalmers, Milwaukee, has appointed **Robert E. Ketten** as sales engineer in the thermal power department's water conditioning section, where he will be responsible for sales and service of the section's products. A Marquette graduate, Mr. Ketten was in paper and pulp research work and steam plant equipment sales prior to joining Allis-Chalmers water conditioning engineering section in 1948.

Howard Freyenese has been promoted to general products sales manager by Bucyrus-Erie Co., South Milwaukee. . . . **R. S. Schuba** has moved from Louisville, Ky., to become the Detroit district manager for Hewitt-Robins Inc., with responsibility for marketing conveyor machinery, power transmission equipment and industrial rubber products.

Canada

Stewart Routledge is asst. treas., Columbia Cellulose Co., and Celgar Ltd., and treas. of Columbia Pulp Sales. He joined the company as assistant senior accountant at the Prince Rupert mill in 1959.

A. H. Harper is mgr. of Fraser Cos'. Atholville, N. B., pulp mill. Formerly at kraft mill at Newcastle, N. B., he served as research chemist and in various operating positions.

George B. Hills, Jr., has resigned as vice pres., Martin Paper Products, Ltd., a subsidiary of MacMillan, Bloedel & Powell River, Ltd., with five converting plants in western Canada, to become gen. mgr., Stone Container Corp., Chicago. Mr. Hills, American-born, joined Powell River some years ago and worked on planning and development until his assignment to Martin. At MB&PR he reported directly to M. J. Foley and J. E. Liersch, both of whom resigned recently.

Don S. Denman has been named production mgr., and **Philip D. Mare,** mgr. of administration for operations of a new division of Crown Zellerbach Canada dealing with building materials.

Wilfred D. Mosher, formerly assistant mgr. mfg., Consolidated Paper Corp., is now manager, according to announcement by **D. B. Foss,** vice pres.

J. J. deG. Loranger has been named supervisor of personnel, St. Lawrence Corp.'s Three Rivers mill; **W. P. McClelland** as supervisor of labor relations.

South

Bradshaw

McCanless

Fred P. Bradshaw, personnel director of International Paper's Pine Bluff mill, has been promoted to assistant to the manager of Industrial Relations for the Southern Kraft Division in Mobile. **William J. McCanless** moves up from assistant personnel director to personnel director at Pine Bluff.

Nalco Chemical Co. has promoted three to industrial division district managers. **P. M. Henry** moves from the Pacific Northwest to a new post as manager of the company's Mid-South District. **R. E. Eddy,** formerly production manager of the papermaking chemicals dept. in Chicago, now heads the Southeastern District at Jacksonville, Fla. **Orell Collins,** former area mgr. in Texas, heads the new S. Atlantic District.

Link-Belt has two new district managers. **Robert R. Henry** moves to Detroit from the Southwestern Div., succeeding **George A. Paige,** who retired April 30 after 42 years with the company. **Raymond A. Ibaurguen** succeeds Mr. Henry at Houston. Both Mr. Henry and Mr. Ibaurguen have had many years' experience with Link-Belt in Texas.

Bruce Ellen, gen. supt. of Continental Can Co.'s Southern Paperboard div. at Pt. Wentworth, Ga., has resigned to accept the position of prod. mgr. for Southern Land, Timber and Pulp Corp. He will serve as consultant to Southern Land's engineering dept. in all phases of mill layout, flow design, equipment procurement, etc., during the planning phase and construction of the new $42 million mill in Early County, Ga.

R. Kirk Booker has been named sales rep. by Fuller Co., manufacturer of compressors and pneumatic conveying equipment in the Southern Div.'s Houston office.

Adam Rozyskie, for many years asst. mill manager of International Paper's Georgetown, S.C., mill, and a well-known figure in Southern papermaking circles has joined the staff of the Atlanta Wire Works, College Park, Ga., following his retirement from IP. He will serve as technical consultant. He will work closely with **H. D. (Bill) Sheesley,** recently appointed sales manager of the Atlanta Wire Works. Mr. Sheesley has been a sales representative for the past two years for Atlanta Wire Works.

East

Dr. R. W. Reed has been named asst. mgr., manufacturing of St. Regis' Printing Paper Div. He will be directly responsible for the operation and administration of all printing paper mills, reporting to manager L. J. Smith.

With this change, functions of technical service to customers, quality control and mill sales-service for the Printing Paper Div. have been transferred from the Technical Div. to Printing Paper Div. **Harvey E. Sweetland** becomes manager of Customer Services.

Kenneth E. Fryfogle has joined Mount Vernon Hills Inc., Baltimore, Md., as president of a new division known as Mount Vernon Dryer Felt Co. He had been associated with Abney Mills, Greenville, S.C. as manager of their Brandon Sales Co. Other officers of the new division are **B. C. Aldrich,** vice pres., and **W. W. Jones,** sec.-treas.

Alfred E. Wirt is now manager of Hercules Powder Co.'s Imperial Color Chemical & Paper Dept. He succeeds **Arthur F. Brown** who retired. . . . **A. J. "Woody" Herrmann** has joined Goulds Pumps, Inc., as engineering product mgr. He was previously with Dean Bros. Pumps, Inc. as vice pres., and chief engineer.

Ralph W. Kittle is now asst. mgr., industrial relations dept., International

Paper Co. **Robert B. Kopf** has been named manager of industrial relations for IP's Northern Division mills and **J. J. Reid,** manager of industrial relations for all converting divisions. **George J. Adams** continues as manager of the company's industrial relations dept.

Edward P. Skralskis has been named executive vice pres. i/c all Omark Industries, Inc. within the U.S. **Harold G. Cutright** becomes vice pres., marketing and **Joseph E. Todd** remains genl. mgr., of company activities in Canada. **E. S. Smith** continues as genl. mgr., of Omark International Ltd.

Suppliers

Leidy

Moody

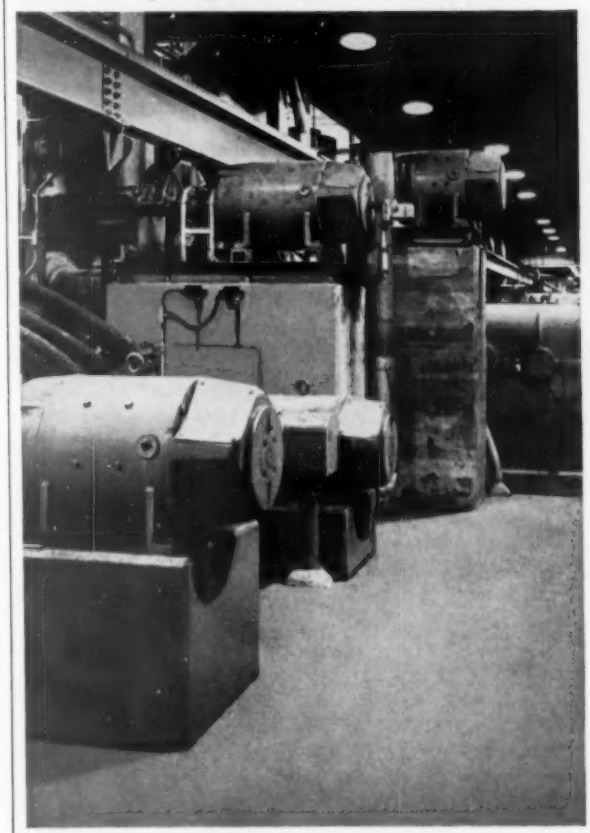
John C. "Jack" Leidy has joined Brandon Sales, Inc., sales agents for Brandon Dryer Felts, as mid-Atlantic representative. He was formerly production engineer, Fraser Paper, Ltd. and sales engineer for

David F. Craft has been named as chief estimator of Rice Barton Corporation. Mr. Craft was advanced to his new position after serving in Rice Barton's engineering and estimating departments. Previous to joining Rice Barton in 1960 he was with Integron, Inc., Waltham, Mass. and Associated Engineers, Boston, Mass. as a machine and tool designer. H. Waterbury & Sons. **W. B. "Chip" Moody,** formerly with Hercules Power Co., joints Brandon in Northern states.

Robert E. Ingison, technical director, J. P. Lewis Co., becomes technical director, Dilts div., Black-Clawson Fulton, N. Y.

John J. Waddock has been elected vice pres. i/c sales, The Clark-Aiken Co. He has been with Clark-Aiken his entire business life, having joined in 1946 after army service.

Westinghouse helper drives on world's fastest kraft paper machine



Twenty-two Westinghouse Life-Line H d-c motors make up the helper drives on both wet and dry ends of this new Union Bag-Camp high speed machine. These Westinghouse motors feature special insulation (much longer insulation life than ordinary Class B motors), a controlled ventilation system and 35% increase in commutating ability . . . to give this machine close regulation and faster accelerations, exceptional performance. For more details on this #7 machine, see next page.

J-96162-3

Westinghouse

starts on p. 21 . . . stantly changing due to the impact of social science research, technological developments and economic forces. We have entered a period of professionalism of management requiring a balance of interest between employers, the consumer, the employe, the community and the nation. I would like to discuss briefly this phase of activity by the forester of today.

The enterprise must produce profit but in such way that it may have continuity, safety and security. It must maintain growth—not only on an economic but also on a social basis which will safeguard and strengthen the efforts of the organization. The manager must conduct the business in such manner that he continuously balances the needs and the rewards among all of the parties of interest, the employer, the employe, the consumer, the community and the nation.

The science of management is a thoughtfully organized and human approach to the permanence of the management job as contrasted with the hit-and-miss rule-of-thumb approach as in past years. Knowledge is available to management covering the attitudes, principles, skills and tools. The professional man as an individual, because of his education, training, experience and competence, is employed to develop and expand the assets, whether they are of a material or human nature.

The thing that leads him on, which causes him to exert his best efforts to aspire to accomplishment, is the desire to win, over the long run, the respect of those of his fellow workers and associates whose judgment and whose standards of judgment he respects. He will through his effort and his ability draw strong men about him and he will deal justly with his employes and thereby merit their respect and confidence. Moreover, he is proud of his organization and will exercise all of his efforts toward making it sound and successful and a good citizen of the community.

The requisites of a sound and successful organization are that every member of the organization must be proud of his work, everyone must be proud of the reputation of his company, and all must have the sense of belonging. Motivating forces of this kind are fostered by the type of leadership given by capable management.

Employes very quickly sense the true character of their leaders and they want men they can respect and depend upon. They are also very much interested in the community life and home life of the leaders. The character and habits of the small group of men at the top to whom the organization looks for leadership have much to do with their ability to motivate the employes. Employes judge their company on more than merely their efforts and actions during working hours.

GUNNAR NICHOLSON has had many years experience in the building of mills and developing of forest resources for some of the largest paper companies. He was executive vice president of Union Bag Paper Corp. (now Union Bag-Camp Paper) before taking on the responsibility for planning and building the new Tennessee Pulp & Paper Co. mill, now in operation in Counce, Tenn., and its forests. This article is based upon an address he made recently before the Society of American Foresters in Jacksonville, Fla. A veteran of the industry, but a man who keeps looking forward and studying new trends and techniques, Mr. Nicholson won the TAPPI Gold Medal in 1954 and he was president of TAPPI in 1946.

Interests of the individual are not limited to the things which affect him directly. Most people like to belong to a winning team. People will work hard for the success of the team or group to which they belong. The task of management is to encourage in them an emotional feeling of belonging. Motivation is the driving power which carries out the plans of management through the enthusiasm of the group. In addition to knowledge of the business, a manager must have the ability to plan, decide, organize and motivate. The process of building an organization of capable individuals is a long and tedious one. To secure and hold good men is a real problem. The development of a well organized training program is important but more important is the personal leadership and example set by the manager.

The manager should set a good example for those under him and devote himself to the task of their training and development. Every manager has acquired a wealth of information that can be of great value to the younger men in his organization and it is his responsibility and duty to unfold that information on a continuous basis. His own success depends to a great extent upon the skill, ability and energy of those working for him.

We all learn a good deal of our business knowledge in managerial skills by emulation and association. Learning how to inspire a man to give the best that is in him instead of ordering him to do a specific task has been one of the great managerial advancements of recent years. In addition to delineating areas of responsibilities and authority, a good leader will practice common counsel, courtesy, consideration, and above all concede merit. He must have a passion for excellence and it must be excellence for its own sake.

No organization can be successful unless every member pulls in the same direction. For that reason they have to know what you want them to do and they must know how to do it. Every employe in the organization must be given an understanding of the organization's goals, its objectives and its policies. Managers must learn to communicate effectively so they can produce the results that are required of them. Good communication is of more importance today than ever in the past considering specialization, technological and scientific progress. When a manager talks to his employes, he should strive to bring about a sympathetic understanding and approach matters from the employe's point of view and deal in specifics that are meaningful and understandable to them, and it must be on a forthright basis. He should also be sensitive to their feelings and desires.

The success of any company depends on the efforts of each individual in the company, and most people will do a good job if they are made to feel that they are an important part of their organization. The force probably most important in our age in motivating the modern man is the "satisfyingness" of that feeling that one is somebody of significance—the sense of approval." It is the task of a good manager to understand this and make his men feel that they are proud of a living, functioning organization to which they are truly important. The realization of this objective will add to the efforts and efficiency of the employe, and it can be fostered only by good management.

A condition which is most essential for a successful organization is a well planned and sound program of expansion and growth which will provide opportunities for advancement for capable and ambitious employes in the organization. As a business grows there will be opportuni-

ties for advancement. A policy of promotion from within is very essential in order to build up a strong and hitting organization. There should be no concern about complacency or narrow attitude developing provided a careful system of selection and screening when employing the new young employes is carried out and that the new employes are well trained and guided by a keen and alert management.

A good employe morale is of the utmost importance not only for the internal organizational relationship but also for the relationship with the community. The employe plays the biggest single role in molding community thinking. It is the employe who sets the tone for the community's attitude toward the company. Because of his association, the employe is considered the best source of information on company plans, policies, aims and objectives and he can be a great force in helping to create harmony and respect.

This applies to an even greater extent to the forest manager and his employes considering their tremendous impact not only on the people in the local community but to those living in the general territory where land is owned by the company and where pulpwood, sawtimber and other forest products are being purchased. The basic principle for such relations must be sincerity and honest purpose and the company forester can contribute a most valuable service to the land owners and particularly to the numerous small land owners. ■

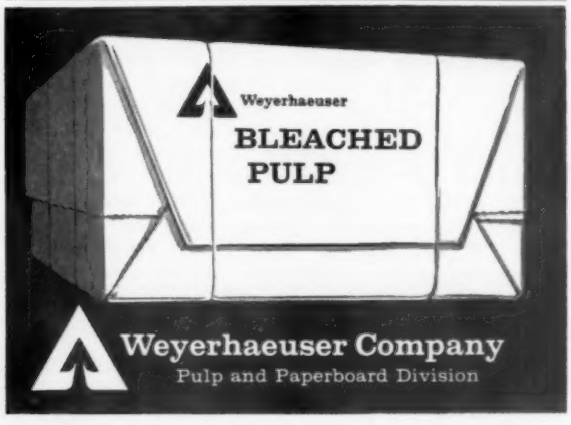
IPC's Dr. Pearl Finds Valuable Acid in Palmetto

APPLETON—A patent for extraction of para-hydroxybenzoic acid from the cabbage palmetto, and other palm trees, has been issued to Dr. Irwin A. Pearl, chief of the lignin chemistry group at The Institute of Paper Chemistry. The patent will be assigned to the institute.

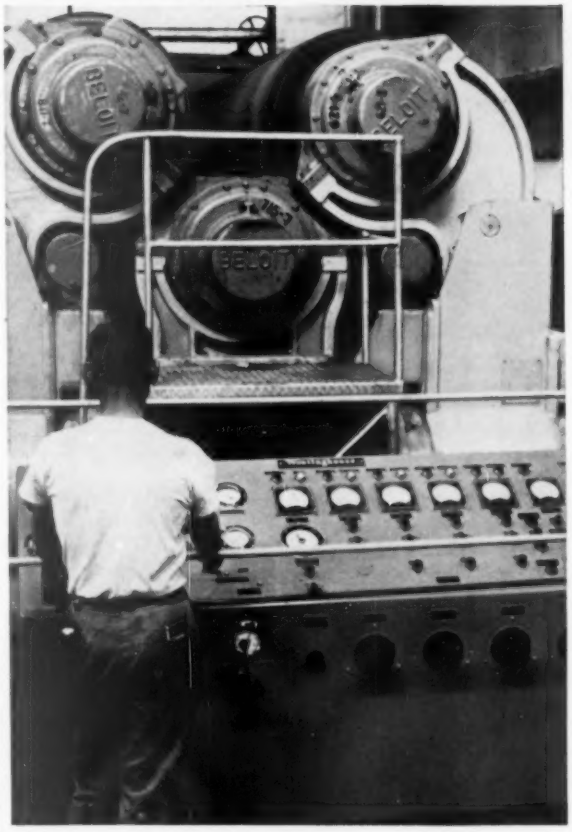
Previous to Dr. Pearl's work, the acid was not known to exist in any tree, and had been produced synthetically only. It has wide use in the production of synthetic fibers of the polyester type, and in manufacture of cosmetics, gums, mucilage and as a nonfood preservative.

The cabbage palmetto (sabal palmetto) grows profusely in southeastern United States to the extent that it is a nuisance. It has to be cleared away if pulp or useful wood is to be planted. Dr. Pearl says the acid exists in the cabbage palmetto in amounts of 40 to 50% of the extractive part.

Dr. Pearl came to the Institute some years ago from the University of Washington, Seattle. ■



Westinghouse controls on world's fastest kraft paper machine



Westinghouse static regulators control all wet and dry end helper drives, as well as the winder drive. In use by more than 500 paper producing and finishing operations, this Westinghouse static control provides simplified, automatic regulation . . . maintains paper quality at high speeds. For more information on how Westinghouse serves Union Bag-Camp's high-speed machine, see the next page.

J-96162-4

Westinghouse

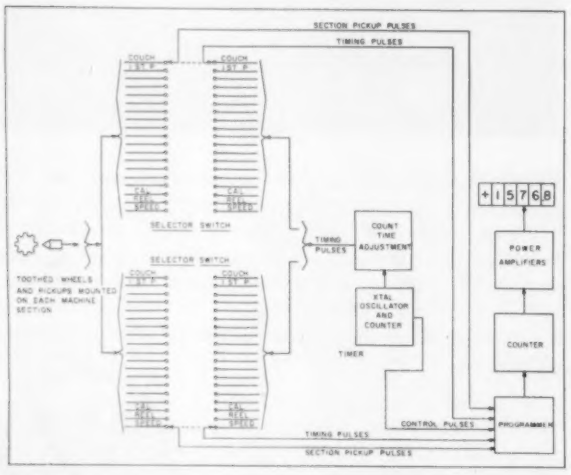
starts on p. 25 . . . justment of the number of timing pulses counted out of the oscillator for each section.

Rolls on certain sections of a paper machine are reground from time to time. The resulting changes in roll diameter changes the constant K and therefore the required section counting time. To compensate for this change the same adjustment is used to vary the counting time slightly from section-to-section. These adjustments are easily made by mill personnel in accordance with the measured roll diameter or circumference. The roll may be ground at least 10% without forcing the instrument out of range, and any new diameter can be accommodated by changing the toothed wheel. Calibration is necessary only if a roll is ground and not to check the accuracy of the unit.

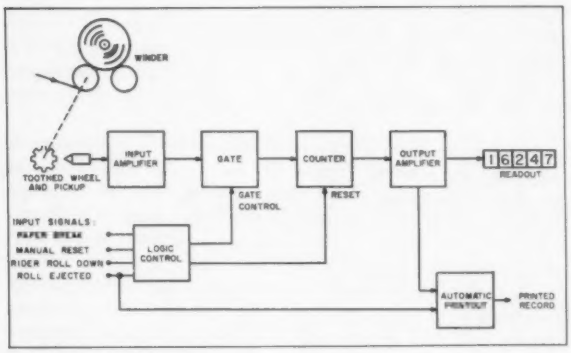
Basic operational features of the instrument are shown in the block diagram. A pulse wheel and reluctance pickup are provided for each machine section. The pickup output is brought into the first deck of two selector switches. The second deck of each of these switches is connected to the timer through a terminal board used for adjustment of the counting time. The timer itself consists of the crystal and a counter which provides a very fine time adjustment. This counting time adjustment provides a pulse to indicate the time required for the pickup pulse count to equal the section speed in fpm. Therefore, when a selector switch is turned to a particular machine section, one deck of the switch selects the pickup pulse output of that section and the other deck selects the required section counting time.

The selector switches have an extra position labeled "speed." When measuring draw, both inputs will be set to different sections of the machine. The instrument will then function to subtract the speeds of the two sections and display the difference, which is the fpm draw. Draw is displayed with a plus sign if the righthand selector switch is set to the faster section and a minus sign if the lefthand selector switch is set to the faster section. If an absolute speed indication is desired, the left hand selector switch is set to "speed" and the right hand selector switch to the section whose speed is to be measured. The result is displayed for an adjustable time of from .1 to 15 seconds.

The timer consists of four transistorized printed circuit modules, three of which are identical. All may be removed for replacement. As with the entire instrument, modules are entirely static and contain no electronic tubes.



DRAW-SPEED INDICATOR is more elaborate than the linear counter, ties in to dryer sections on machine.



LINEAR FOOT COUNTER operation is shown in diagram. As paper passes around drum driving pulse wheel, wheel teeth cause pulsed output from the pickup. Number of teeth on wheel is selected so each pulse is one linear ft. of paper. Pulses are amplified and fed into the counter.

From the selector switches, the pickup pulses and the timing pulses are fed to a portion of the instrument called the Programmer. The programmer also receives certain pulses from the timer which are used for control and logic functions. The programmer consists of four transistorized removable printed circuit modules and functions as the brain of the instrument. It allows pickup pulses from one machine section to be fed into the counter until a timing pulse indicates the end of the counting period. Pickup pulses from a second machine section are then fed into the counter (in such a way as to subtract from the first section pulses) until a second timing pulse indicates the end of the second counting period.

The programmer then prevents all pulses from entering the counter, permitting the counter to display the draw, with the proper plus or minus sign, for the instrument display time. The programmer then resets the counter to zero and repeats the cycle. Should the second selector switch to set on "speed" there will be no pulses to subtract from the first section's reading and the speed of the section will be displayed.

Counter receiving pickup pulses from the programmer has five identical transistorized printed circuit modules. Pulses admitted to this counter by the programmer energize the proper transistor power amplifiers which in turn energize the proper numbers on the readout. The counter is arranged to be able to count one group of pulses and then count a second group in such a manner that they subtract from the first group. This permits the counter to function for both draw and speed indication. The transistorized power amplifiers are packaged in five identical printed circuit modules, and have sufficient power output to illuminate the display units. There is one module for each decimal place in the readout.

The numerical display consists of a separate unit for each decimal place and a plus or minus unit. These units have a 6.3 volt lamp for each number. When a lamp is illuminated by a transistor power amplifier, its number is projected through a lucite lens onto a frosted plastic viewing screen. The projected numbers are 1 inch high in the St. Regis unit.

The draw speed indicator unit is approximately 20 in. wide, 18-½ in. high, and 9-¾ in. deep, and contains all the

necessary equipment for draw-speed indication exclusive of the pulse wheel and pickup units mounted on the section shafts of the paper machine.

The St. Regis installation just described is typical of a standard draw-speed indicator. Similar equipment is installed or being built for several other mills. Although the St. Regis installation uses as an information source toothed wheels and pickups which were obtained and mounted by the mill, these are available integrally mounted in a cast iron tachometer housing. This digital tachometer includes two sealed bearings and a gasketed cover. It contains no active or moving parts except for the rotating toothed wheel, and is supplied with a length of shielded cable and a junction box to facilitate mill mounting and wiring.

The No. 3 machine at St. Regis has 12 sections, but the draw-speed indicator can accommodate 18 sections. The spare 6 may be put into service merely by adding section toothed wheels and pickups (or digital tachometers), and may be used for future section additions or even for an adjacent paper machine.

Indicator itself is available

to indicate to either the nearest foot per minute or, as at St. Regis, to the nearest tenth of a foot per minute. The foot per minute instrument requires only 1 second to make a draw determination, while the more accurate instrument requires ten seconds. Any number of the 18 inputs can be provided so that percent draw, or percent creep, is calculated and indicated rather than draw in feet per minute. Percents may be read in increments of .1% or .01%.

Paralleled readouts may be provided that permit draw and speed readings to be displayed at several locations up and down the machine. Remote pushbuttons may be mounted in the machine control consoles, giving operators up and down the machine means to select, as well as read, speeds and draws associated with the sections immediately in front of them. Readouts have been supplied with large numerals 3¾ inches high. Two or three such large readouts can be seen from anywhere along the machine.

Systems are available to record, as well as display, the speeds and draws of the various sections. These recording systems, which have the same accuracy as the indicating systems, provide a typed record of the various speeds and draws. They may be designed to use portions of the circuitry of the indicating equipment, or may be completely independent.

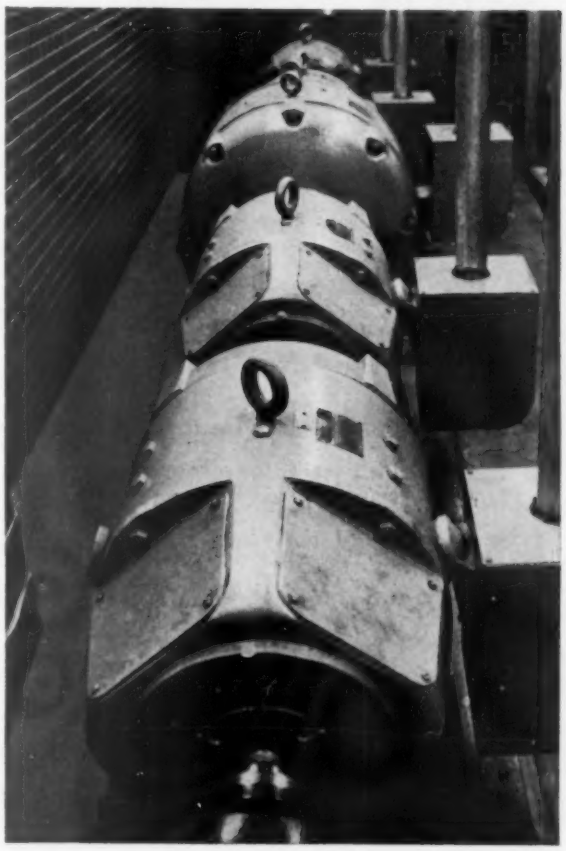
The recorder may be instructed to examine and record any speed or draw desired on the machine, and will correlate this data with the date, time, and any other pertinent information desired. Recorder instructions are easily changed by mill personnel. The recording cycle is fully automatic, and a punched tape record suitable for use with digital computing machines is provided in addition to the printed record. Also available is a complete data logging system, which will record not only speeds and draws, but any variable which can be transformed into a millivolt signal proportional to the value of the variable.

Digital linear foot counter

provides an accurate indication of the length of paper wound into each shipping roll. This information is desirable in products where the user or the mill is interested in the length as well as the weight of the paper purchased. When combined with the roll diameter, the linear foot counter makes possible an accurate determination of the average paper caliper in the roll.

The foot counter employs the same digital principles and transistorized modular construction as the draw speed 1 inch high numerals. The unit is designed to count up to 99,999 feet of paper and displays the length to the nearest indicator. Paper length is displayed numerically in feet in

Westinghouse d-c generators supply power to world's fastest kraft paper machine



Two Westinghouse adjustable voltage d-c drives (330-kw for fourdrinier section; 250-kw for wet-felt section) power the wet end of the new Union Bag-Camp machine. Westinghouse exclusive insulation system assures extra service life for these important drives. Four Westinghouse Life-Line H d-c 40-kw generators power the dry-end helper drives, permit close regulation, faster accelerations, maximum performance. For more details on the new #7 machine, see the next page.

J-96162-5

Westinghouse

Keep production at full speed with ORISKANY Needled Felts

Paper mills that have tried Oriskany Needled Felts on an experimental basis have reported increased production, increased felt life, noticeably improved finish and sheet characteristics. This unique felt processing method combines the finest features of Oriskany's traditional quality felts with a bonded top layer of wool and synthetic fibers that adds remarkable strength, drainage and durability.

In a modern, new building devoted exclusively to the production of needled felts, Oriskany has installed precision needle loom equipment that produces a uniform and flawless needled felt to your exact requirements. Our continuing research and testing promises to develop further applications for this new felt-making technique.

Your Oriskany Sales Engineer can give you more details on the advantages of using Needled Felts for your paper products.

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. . . Draw-speed Indicator

foot. The foot counter display unit also contains the circuitry required to perform the counting. A reluctance pickup and toothed wheel similar to that used in the draw-speed indicator is mounted driven from one of the winder drums to provide pulse signals to the counter unit.

Conventional limit switches control starting and stopping of the counter. A limit switch actuated by the rider roll is used to start the count and a similar switch actuated by the roll ejector to stop the count. In addition the counter is stopped on a sheet break by a signal from a sheet break detector.

A printer automatically provides a written record of the paper lengths in each shipping roll. This eliminates the necessity for the operator to read the counter before the rider roll is brought down on the next shipping core (resetting the counter to zero) and automatically provides a written record of the winder production.

The block diagram indicates the essential features of the linear foot counter. The length of paper is determined by counting the number of pulses from the pickup which are amplified and fed into the counter. The pulses are counted and the count is transmitted to the transistorized power output amplifier. The amplifier energizes the proper numbers on the readout.

Typical cycle of the counter is as follows: The rider roll is lowered on a new shipping core. The rider roll limit switch resets the counter to zero, and completes the circuit to the counter. When the winder is started, pulses enter the counter.

Should the paper break during the winder operation, the paper break detector opens the circuit to the counter. Splicing the sheet will remove the paper break signal and allow the counter to resume operation when the winder is restarted.

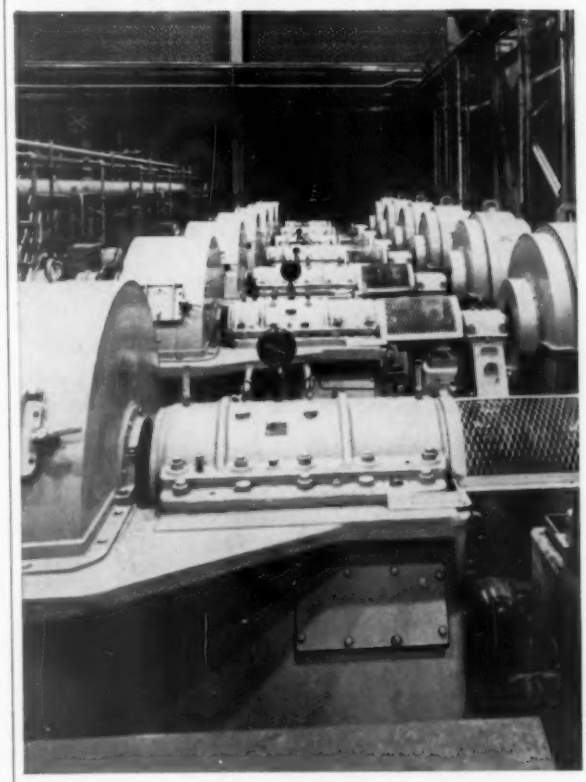
The rider roll limit switch signal input is arranged so that once the rider roll operates the reset, it will not do so again until the roll ejector has operated. This permits raising and lowering the rider roll during operation without losing the count. Should the paper get a poor start on the core and have to be removed, the roll ejector might not be used and the paper counted during the poor start would remain on the counter. This count may be removed by the manual reset push-button which will reset the counter to zero and prepare the unit for subsequent roll ejector operation in the same manner as the initial lowering of the rider roll.

When the shipping roll is removed from the drums by the roll ejector, a limit switch breaks the circuit to the counter. The counter will then be indicating on the readout the total length of paper in the roll. The roll ejector limit switch also causes the paper length to be printed out on an adding machine tape. The printout is remotely located from the winder in a nearby office area.

When a new shipping core is placed in the windup stand and the rider roll lowered, operation (a) again takes place and the cycle is repeated.

Modifications of the counter include a capacity of more than 99,999 feet, or a unit that counts in increments of .1 foot or .01 foot rather than the 1 foot increment of the St. Regis unit. Selector switches may be provided that enable the operator to preset various lengths into the foot counter; when the preset length is reached the counter provides a signal which may be used to light an indicating light or pick up a relay. For instance, the counter may be preset to light a "warning" light a few hundred feet before the desired length is reached, notifying the operators to slow the winder down. A

Westinghouse a-c motors drive auxiliaries for world's fastest kraft paper machine

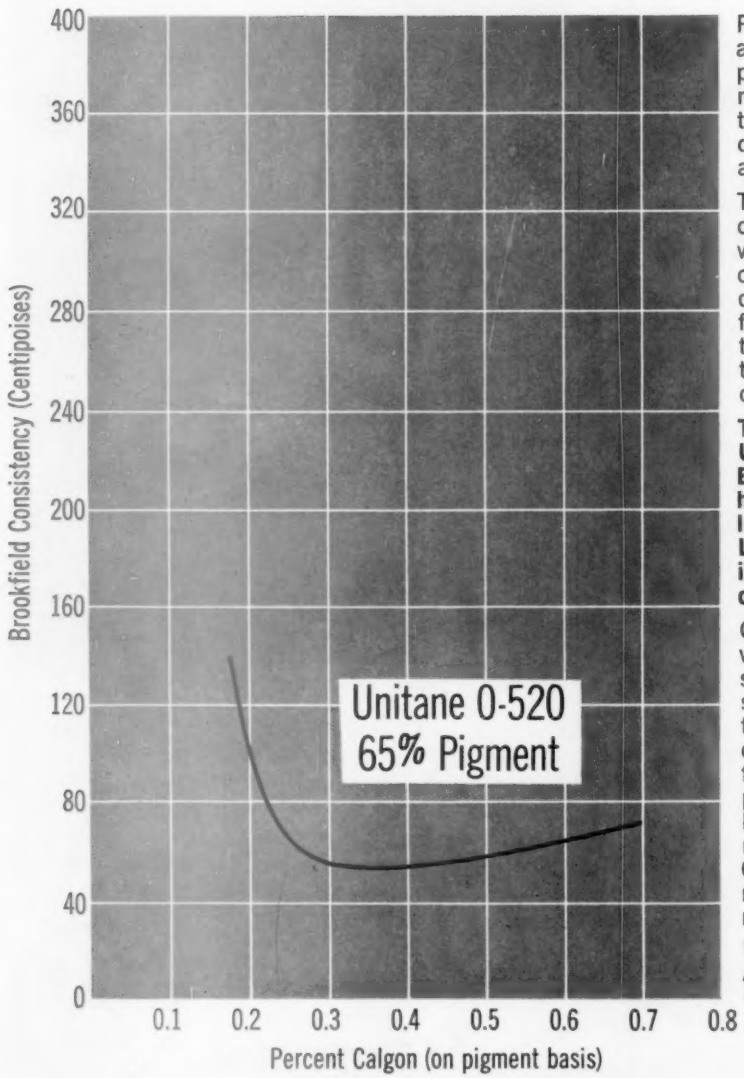


Westinghouse Lifeline A motors, of the totally enclosed, fan cooled type, were selected for the heavy duty service involved in powering numerous pumps and Sturtevant fans. Westinghouse motors, which combine complete accessibility with top performance, are used to power the seven refiners in use with Union Bag-Camp's new #7 machine. There are more details on the next page.

J-96162-6

Westinghouse

smoother, more economical paper coatings assured with new Unitane® 0-520



Recognizing the trend toward smoother and more economical paper coatings employing relatively mild dispersion techniques, Cyanamid has produced a new titanium dioxide pigment, Unitane 0-520 designed especially to meet the most exacting requirements of the paper coater.

The curve illustrates the low dispersant demand and low viscosity of coatings made with Unitane 0-520. The very slight increase in viscosity with increasing amounts of dispersant gives the coating formulator flexibility of formulation. It enables him to control deflocculation and to sequester the polyvalent ions from hard water, calcium carbonate and other fillers.

These desirable features are found in Unitane 0-520:
Easy to disperse – excellent response to high speed equipment • Low consistency – low water demand • High pigment loading • Low abrasion factor • Extremely low residue (325 screen) – promotes smoother coatings

Comparisons with Unitane 0-110, a type well-known in the paper industry, have shown that the new Unitane 0-520 has the same good opacity in all coating applications. A comprehensive report of the tests on Unitane 0-520 and the currently offered paper coatings types has been prepared and is available from your Cyanamid Pigments representative. Why not call him now and let him show you how Unitane 0-520 can give you smoother, more economical coatings. A generous sample is ready for your tests. *Whiter and Brighter with Unitane* CYANAMID

AMERICAN CYANAMID COMPANY PIGMENTS DIVISION
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK

. . . Draw-speed Indicator

second setting on the foot counter could then be used to light a "stop" light when the desired preset length is reached.

Draws are invariably a small percentage of the absolute machine speed, and therefore, if two adjacent section speeds are to be subtracted to obtain draw, each speed must be measured with a high degree of accuracy. To illustrate this, consider a 2000 fpm machine with speed indicators on adjacent sections with a nominal over-all accuracy of ±½%. Each section speed is then known to ±10 fpm, and the draw obtained by subtracting these speeds, is therefore known to ±20 fpm. The actual draw, however, is perhaps only 3% of machine speed, or 60 fpm. Hence, draw is indicated with an accuracy ±33-1/3%.

Since accuracies of measuring equipment are usually stated as a percent of full scale, the draw reading is twice as inaccurate at 1000 fpm. This example points up the need for very high speed measuring accuracies in any draw measuring system, accuracies which can be best obtained and maintained with a digital system.

To be most useful, instrument should retain its accuracy over long periods of time without the necessity of frequent recalibration. Analogue (i.e., voltage comparison) methods are not entirely suitable here. It is difficult to prevent analogue circuitry from drifting, at least to some extent, as component properties tend to vary under the less-than-ideal conditions found around a paper machine. Because of this tendency to drift and give inaccurate readings, analog draw indicating systems applied to paper machines have not always been fully used by operating personnel. The all digital system, in contrast, is being well accepted and put to its intended use by St. Regis machinetenders.

Since initial calibration of the draw-speed indicator is dependent on the roll diameter of each section, errors in measuring roll diameter result in errors in speed or draw indication. Errors also can result if the roll diameter changes as a result of wear or thermal expansion or contraction. Such errors are usually minor and are inherent in any system which does not use a separate measuring wheel riding directly on the sheet, a device which most mills find objectionable and which offers questionable accuracy improvement when wheel slippage and bounce are considered. Roll diameter measurement errors are not included in the accuracy figures previously given for the equipment. ■

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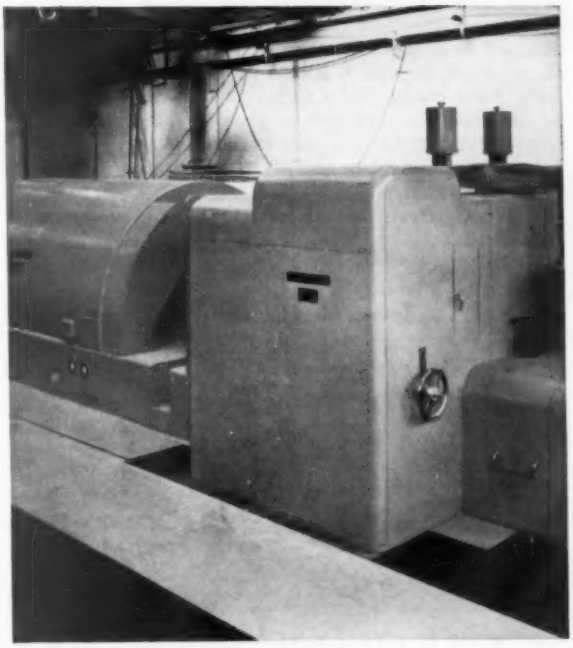
Westinghouse turbine generators power Union Bag-Camp #7 machine expansion



To handle the increased power load required by Union Bag-Camp's #7 machine, a new Westinghouse turbine generator (rated at 25,600 kva) was installed in the power plant at the Savannah, Ga., facility. Of the hydrogen-cooled non-condensing type, this Westinghouse turbine generator uses inlet steam at 1200 psi, 950°F, exhausting at 150 psi. For more information on the new #7 machine, see the next page.

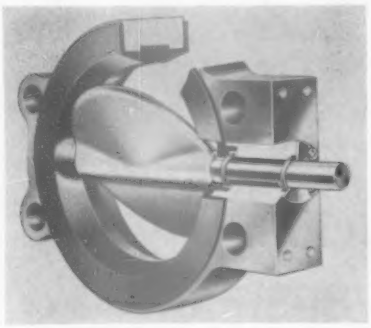
J-96162-7

Westinghouse

NEW EQUIPMENT

Butterfly valve

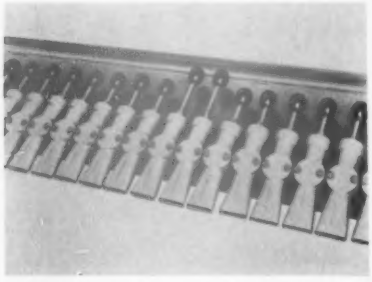
. . . has snap-in liner



Applications: Designed for bubble tight shut-off on vacuum service and differential pressures up to 150 psi; for −60°F to 400°F.
Specifications: Maintenance of valve is said to be simple. It never needs lubrication, says the manufacturer. Valve may be disassembled with a few standard hand tools. Liner can be replaced easily because it is held in the valve body mechanically rather than by bonding or cementing agents. Snap-in type replaceable rubber liner has self-aligning shaft holes which speed re-assembly.
Supplier: **Continental Equipment Co., 200 Main St., Coraopolis, Penna.**

Air doctor

. . . controls sheet caliper



Application: To control sheet caliper on calender rolls.
Advantages: Unit directs controlled amounts of chilled air to any section or sections of the calender roll through a series of independently regulated valves positioned adjacent to one another across full roll width. Caliper of any part of the sheet is controlled by opening the necessary valve or valves. This directs chilled air to desired part of the roll which shrinks it slightly, thereby increasing caliper of sheet at that point. By simply regulating valve openings, precise control over sheet caliper is maintained.
Specifications: Sheet caliper control units can be installed independently or as part of a new doctor installation. When made a part of a conventional doctor, the doctor back serves as an air plenum.

Valves are mounted along face of the doctor at 2 in. intervals. When a valve is open air is blown through an aluminum nozzle at a velocity of approximately 12,000 fpm. High air velocity produced by this nozzle, together with the narrow air stream, results in efficient cooling of correct spot. Each nozzle will consume about 39 cfm of air at this design velocity.

The air supply may be cooled artificially from water coils or mechanical refrigeration units or may be drawn from cooler basement areas. Usual air operating temperatures is 60°; however, it should be remembered, says the manufacturer, that greatest efficiency is achieved with greatest temperature difference between air and roll. Largest unit installed to date is on a 228 in. calender.
Supplier: **Lodding Engineering Corp., Auburn, Mass.**

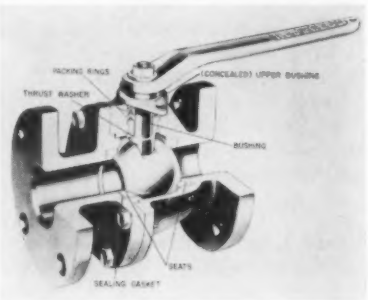
Dryer drainage system

. . . needs less equipment

Applications: For paper machines operating on medium and low pressures and on vacuum.
Advantages: System is said to require less major equipment, controls and accessories than other similar units. Designated as Type 3, it is claimed to be less costly to buy, install, operate and maintain because it uses fewer flash tanks, pumps, motors, controls, control valves and accessories. According to Stickle, savings on equipment and engineering costs alone usually run between 10 and 70%. System puts drainage action of each dryer in a glass cage, where it can be seen. Exclusive visible micro adjustable orifice shows flow of condensate from each dryer, thus revealing hidden trouble and permitting precise control of drainage.
Supplier: **Stickle Steam Specialties Co., 2215 Valley Ave., Indianapolis 18, Ind., Tel: IMperial 7661.**

Teflon parts

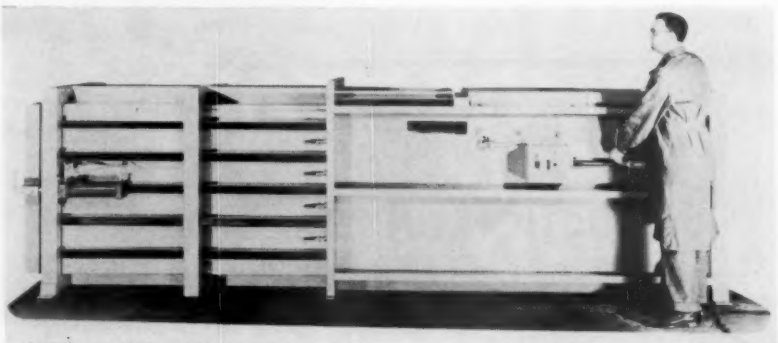
. . . extend ball valve range



Applications: Corrosive chemicals, gases and fluids at extreme temperatures.
Advantages: Ball valves with Teflon components now successfully handle sodium hydroxide and other pulping and bleaching corrosive chemicals. Ball valves are also used in lines which carry pulp at high temperatures.
Specifications: Ball valves are positive-sealing leakproof valves which require no lubrication. This is due to main element design, a spherical perforated ball resting on resilient seats. These seats, as well as sealing parts, can be attacked by materials being conveyed or damaged by temperatures.
Supplier: **Rockwood Sprinkler Co., Worcester, Mass.**

Waste Baler

. . . makes "mill-size" bale



Applications: For baling waste material in box manufacturing plants, paper finishing plants, department stores.
Advantages: (1) Portability. No pit or special foundation of any kind is required for installation. Anchor bolts are not even required. The press is shipped out completely assembled, and the hydraulic oil reservoir is even filled with oil. The only installation

expense, therefore, is the cost of connecting the electric service to the starter box. (2) Speed. The ram makes a complete stroke cycle in 24 sec. (3) Convenience. A large and convenient feeder-hopper is provided on the top center of the 71-in. baler. Located 50 in. above the floor, it is accessible from any direction. This hopper, which holds 21 cu. ft. of material, can also be fed from a chute from the floors above by a conveyor belt or pneumatic system. (2) Safety. All moving parts are encased for maximum operator protection. The press is protected from operator abuse by a safety by-pass in the hydraulic circuit.

Specifications: The baler comes in five sizes, the 72-in. being the largest press in this line. The 72-in. baler is all steel, welded construction, hydraulic, and powered by a 15-hp electric motor. It is 50 in. high, 41 in. wide, and 14 ft. 9 in. long, and weighs 5,400 lbs. It can be set to function automatically. The "72" makes a bale 72 in. long by 42x30 in. Product bales are contained by five 13 gauge baling wires.

Supplier: **Lake Engineering Co., 312 Gostlin St., P. O. Box 784, Hammond, Ind.**

Tank valve

. . . simplifies hook-up

Applications: For storage and processing tanks.

Advantages: Eliminates reducing to match tank connections. Its cross type body design replaces the pipe tee normally required for tank hook-up. Unobstructed full flow internal design.

Specifications: Design of PV valve eliminates water entrapment and subsequent freezing. Available with 2, 3 or 4 in. grooved or threaded connections. Provided with hand-wheel operator stainless steel trim, molded in Buna-N plug. All internal components may easily be replaced without removing the valve body from the line. Valve has malleable iron body, stainless steel internal components and a stainless steel plug.

Supplier: **Instruments, Inc., Tulsa, Okla.**

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Westinghouse

LETTERS to the editor

Champions Use of Hemp To Extend Fiber Resources

—Milwaukee, Wis.

Editor: Owing to the stress being placed today upon the plight of agriculture throughout the nation and the obviously intense endeavors apparently being undertaken to evolve some satisfactory solution to this problem and simultaneously reduce our excessive tax burden, kindly permit me to suggest procedures that will most certainly prove of incalculable advantage to growers of this material, precluding the need of further planting of crops that are already costing the nation over a million dollars daily in storage charges. And as this material is more extensively adopted and grown, it will naturally decrease in cost of production and result in a lower cost of supplementary pulp material and, in turn, improve the general economy and the paper industry as well.

Of the various agricultural materials, I especially advocate use of hemp, to be mixed in quantities of 60 to 80 percent with woodpulp.

In addition to the cost of non-producing land subsidies, crop parity payments, process taxes, etc., which add hundreds of millions more, the adoption of hemp as a source of material for paper will not only eliminate these specific causes of taxes but will also provide a substantial income to the growers, which, in turn, will create a market for products of every description—not only farm machinery, but many food commodities, household articles, clothing, building materials, transportation and possibly many more.

To gain the best results hemp and wood should be cooked and bleached separately, hemp to be bleached in the washing engine, and the bleach added in a weak solution which bleaches the fiber to a cream color, oxidizing it to some extent. Strong bleach should not be used as it will chlorinate the fiber. Continued use of wood, alone, to an extent that exceeds the growth of trees, will eventually result in the denuding of all lands and the desiccation of woodlands and rivers. Woods can still be grown on otherwise unproductive lowlands and hillsides. It requires about 30 years for fast growing trees to mature, whereas hemp will provide an annual source of material.

I am sure that if paper manufacturers would view this matter from an over-all national perspective, they would readily perceive the multiple advantages to accrue therefrom.—*Henry C. Johnson, Former Production Engineer, M. & M. Paper Co., Marinette, Wis.*

Ed.'s Note: Interesting, but if so good why isn't industry using it?

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MILLER FREEMAN PUBLICATIONS

The last word

PULP & PAPER's Publisher Named Board Chairman of ABP Group

William B. Freeman, president of Miller Freeman Publications and publisher of PULP & PAPER and PULP & PAPER INTERNATIONAL has been elected chairman of the board of directors of Associated Business Publications. The announcement was made May 3 at the annual meeting of the organization which represents 169 business publications whose editorial activity penetrates deeply into business and industry throughout the world.

Mr. Freeman

His appointment to the chairmanship is solid recognition of over 30 years service in the field of progressive business publishing. He has headed the Miller Freeman organization for six years. The company was established in 1902 in Seattle, Wash., by Miller Freeman Sr.; PULP & PAPER was started under his guidance in 1927. Today the "stable" of Miller Freeman magazines totals 13 journals serving basic industries in this country and abroad.

Maurice Castagne, Associate Editor

Maurice R. Castagne has been promoted from Eastern editor to associate editor of PULP & PAPER.

In a manner of signalling this event, he was an invited speaker at the recent 12th Annual TAPPI Coating Conference. His associates on the PULP & PAPER staff are aware that Mr. Castagne spent long hours searching for authoritative and valuable information on where coating is going in future years. And the delegates to the Buffalo meeting made it amply clear that he answered perhaps the most critical question facing this segment of the industry.

Mr. Associate Editor

Main points of his address appear in this issue. "Doubling in brass," as it were, Mr. Castagne also presents in this issue his own summation of other major developments at the Coating Conference. He writes these comments with the background of eight years of close association with coating activities and developments. This was his eighth Coating Conference.

Good News from Maine

We now hear that the Summer Institute of the Pulp and Paper Industry at the University of Maine, Orono, Maine, will again be quite successful, with over 25 registered for the pulp sessions and over 50 planning to attend the paper institute in August. This was the count as this issue went to the presses.

With the wonderful cooperation of schools teaching pulp and paper subjects at various American and Canadian colleges and universities, these Maine projects should be notable events.

Within a few years, the Maine institutes should win worldwide recognition.

The growth of the Pulp and Paper Foundation at the University of Maine, reported at its recent Open House on the Maine campus, is also encouraging. More and more paper companies and supply and equipment companies are joining in the Foundation as regular members or special supporters, through scholarships and grants. This, in the end, can only be of general benefit to entire pulp and paper industry.

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